FIG.1

Doxy-addition

Doxycycline-Test in vivo (hIL-6)

| | ng/ml blood (hIL-6) |

FIG.2

Wochentage

ng/ml

FIG.3

nude mouse 4 and scid mouse 0 (SN),LC

bleeding date:
03.05.99,
11.05.99,
26.05.99,
21.06.99,
24.09.99,
22.12.99,
14.01.00

day 101(11.08.99)

scid mouse 0(SN)

nude mouse 4

47,24

2,98

1,055 1,055 1,381

pg/ml CNTF

with Doxycycline
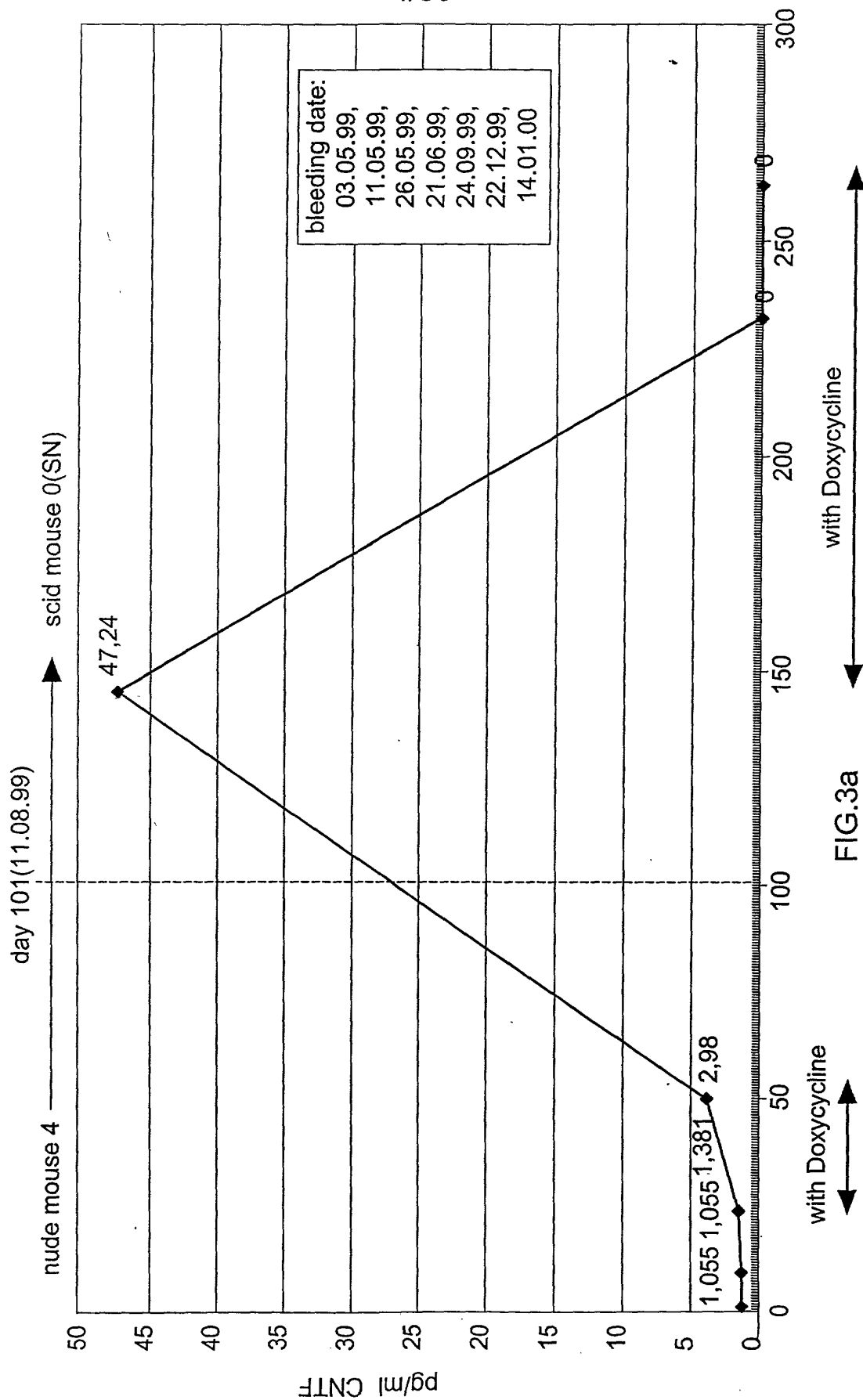
with Doxycycline

FIG.3a

Doxycycline
(in drinking water)

Doxycycline-Test in vivo (nude mice2)

◆ ng/ml blood

bleeding date:
22.04.99, 29.04.99,
11.05.99, 10.06.99,
22.07.99, 30.07.99,
06.08.99

FIG.3b

Days

ng/ml CNTF

Cloning of growth factor genes
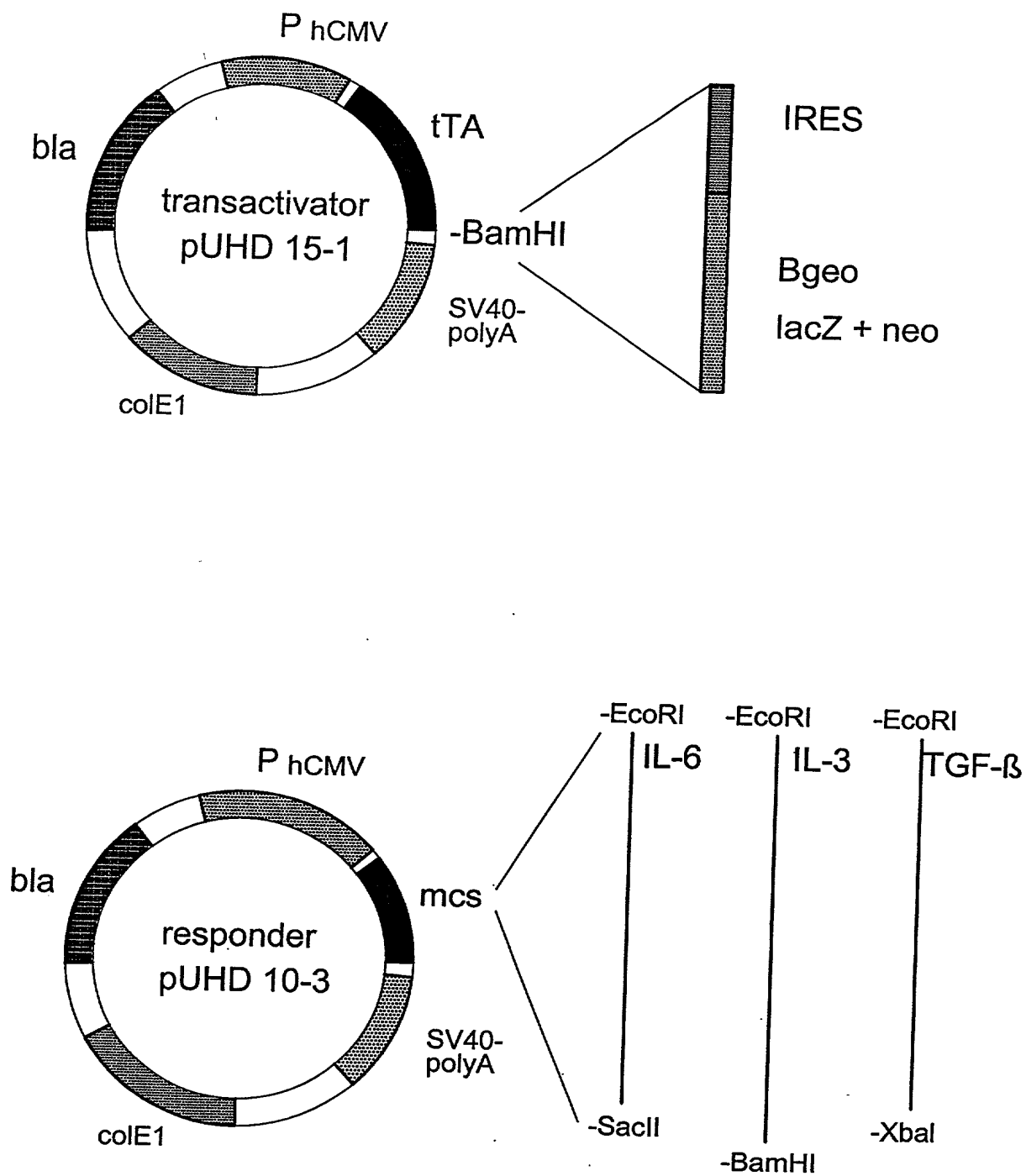
FIG.4

A
H-3
+MK
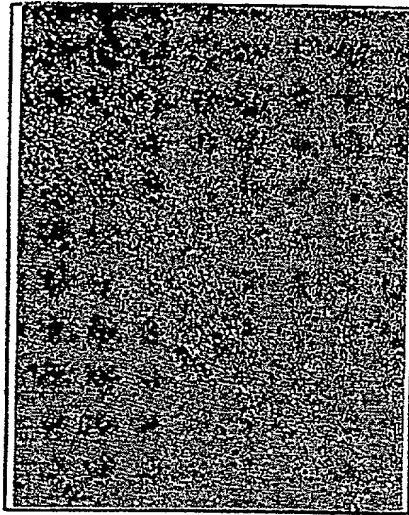
D
H3hIL6
+MK
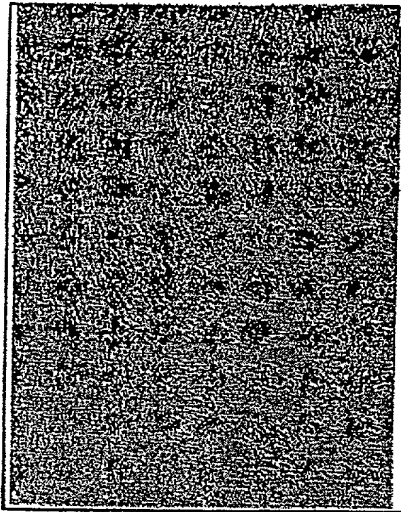
B
H3
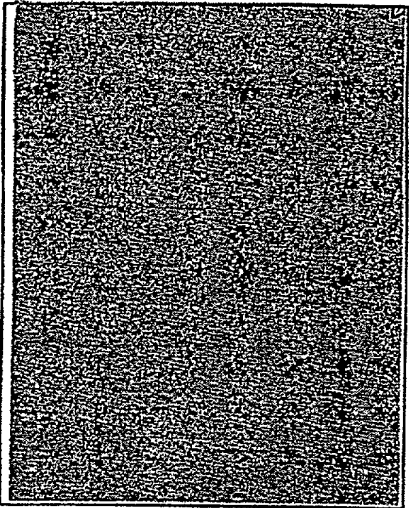
E
H3hI
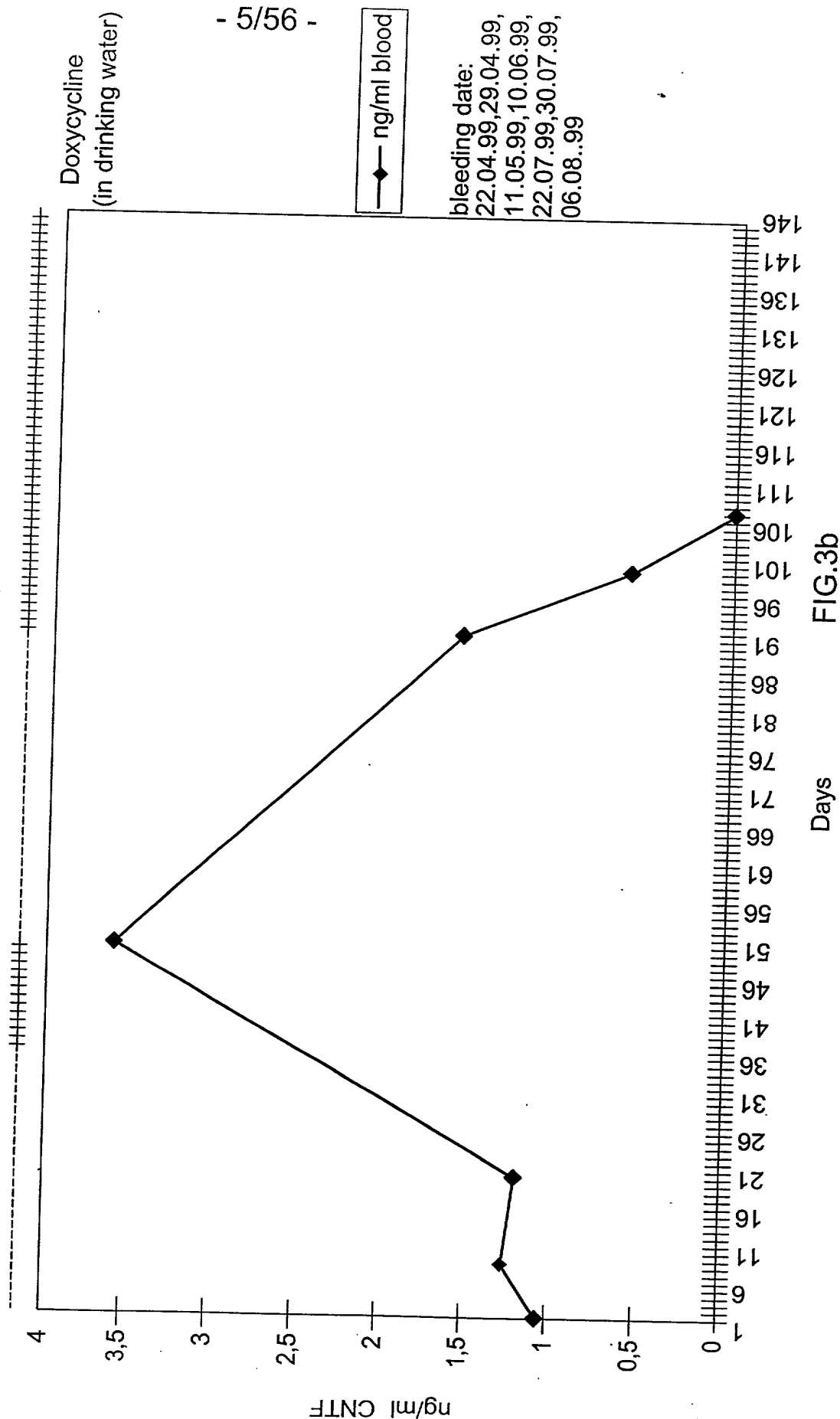L6
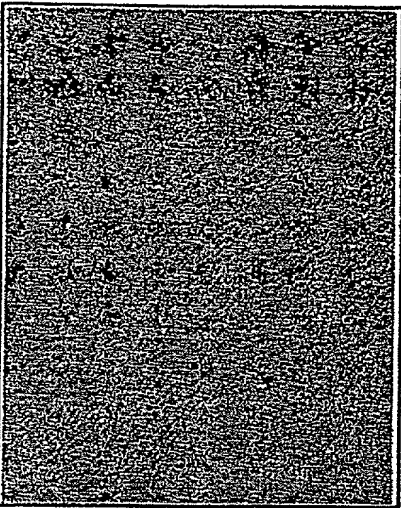
C
MK

F
MK

FIG.5

5wk
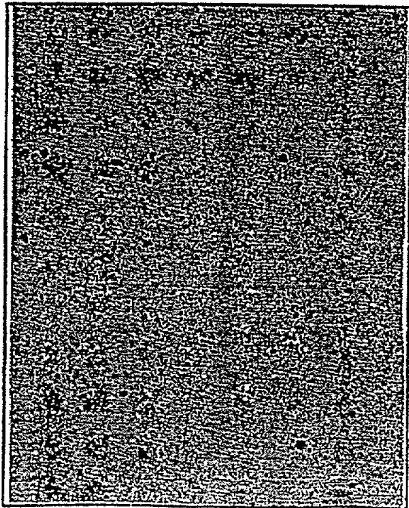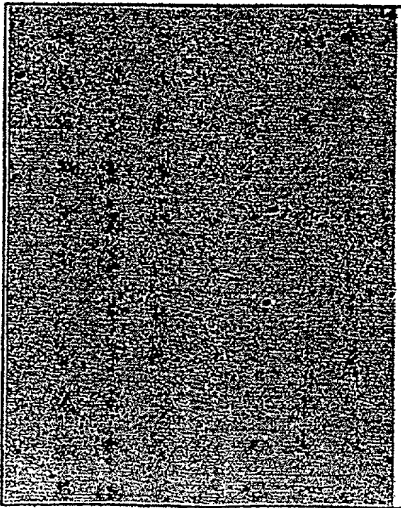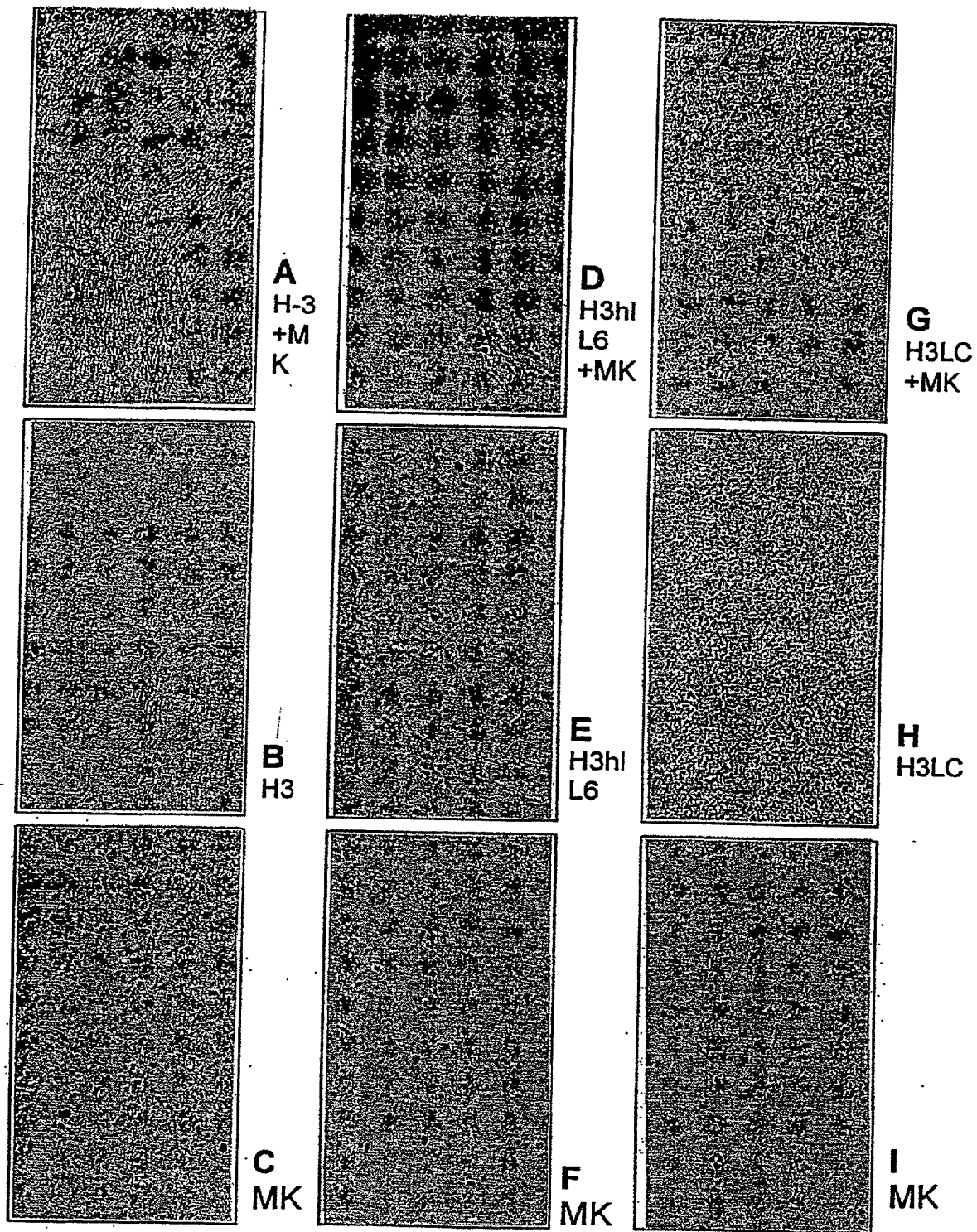
FIG.6

A.MK(MK+H3-GFP)　　　　　　　　B.H3-GFP(MK+H3-GFP
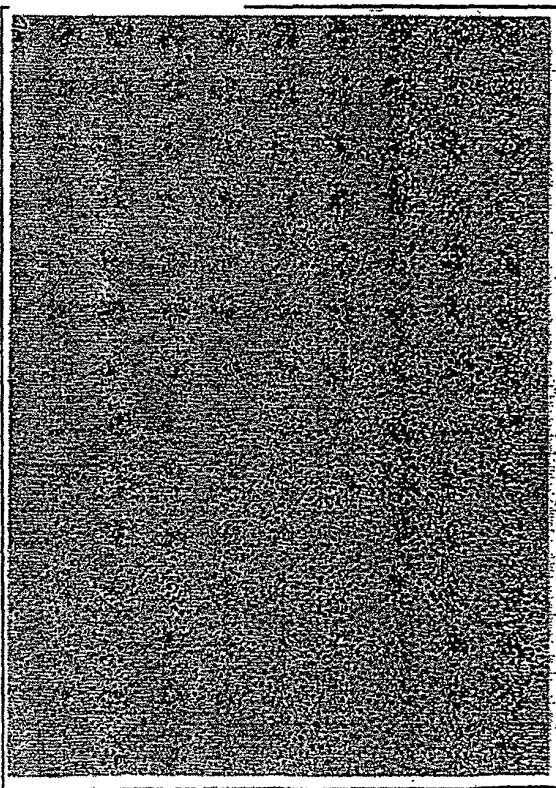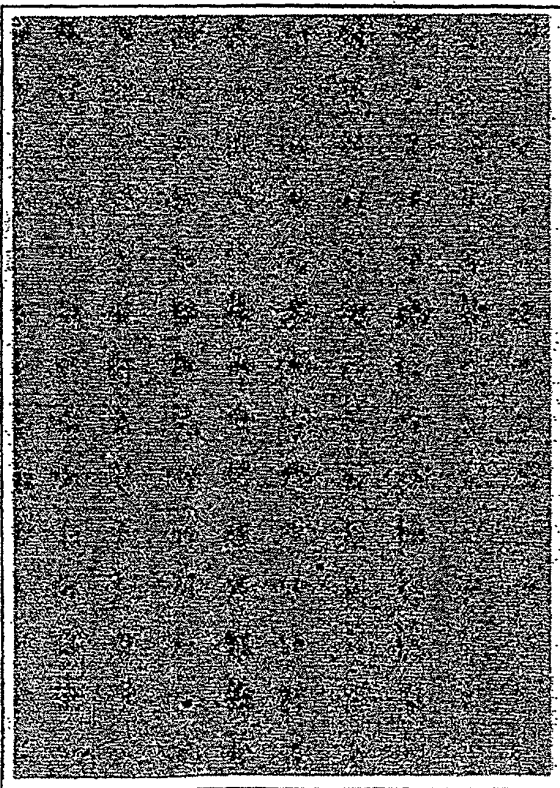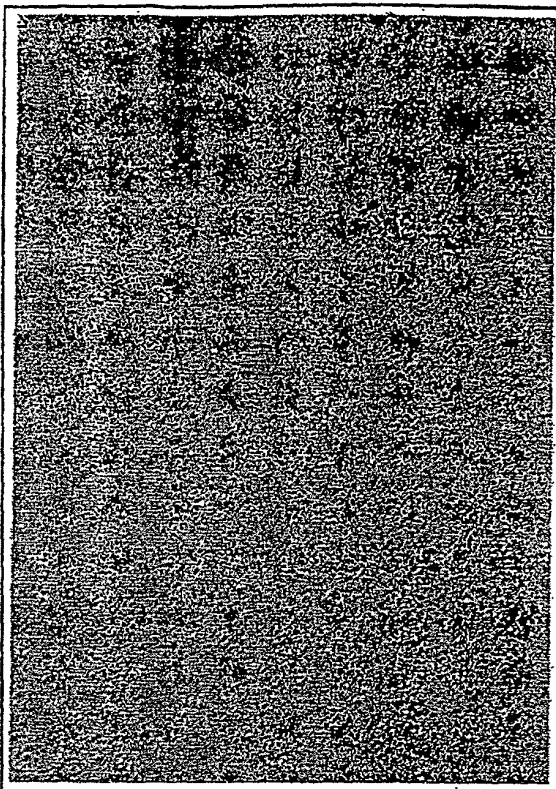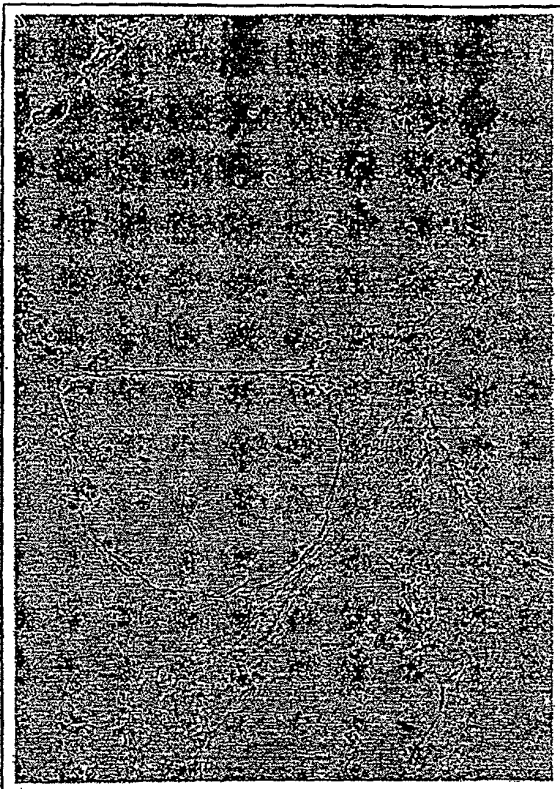
C.MK alone　　　　　　　　　　　D.H3-GFP alone

FIG.7

A.MK (MK+H3-GFP-hIL6)

B.H3-GFP-hIL6(MK+H3-GFP-hIL6)
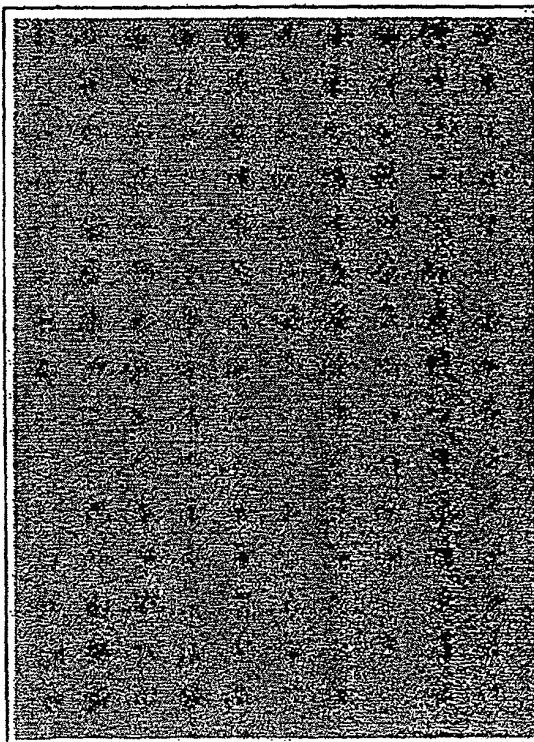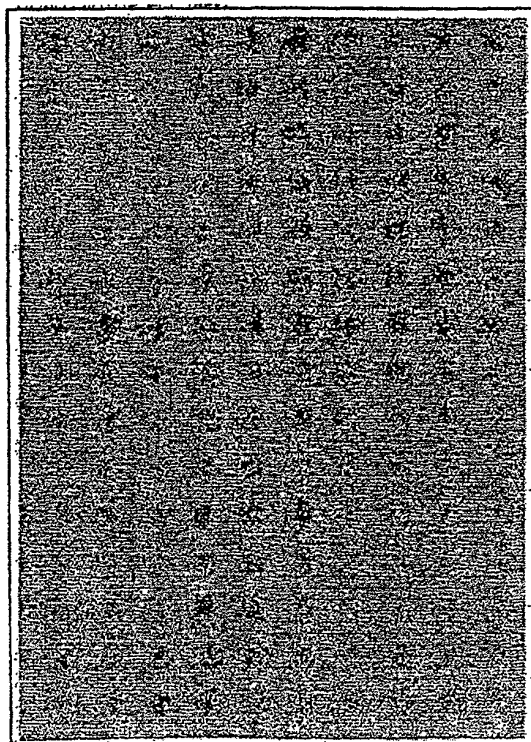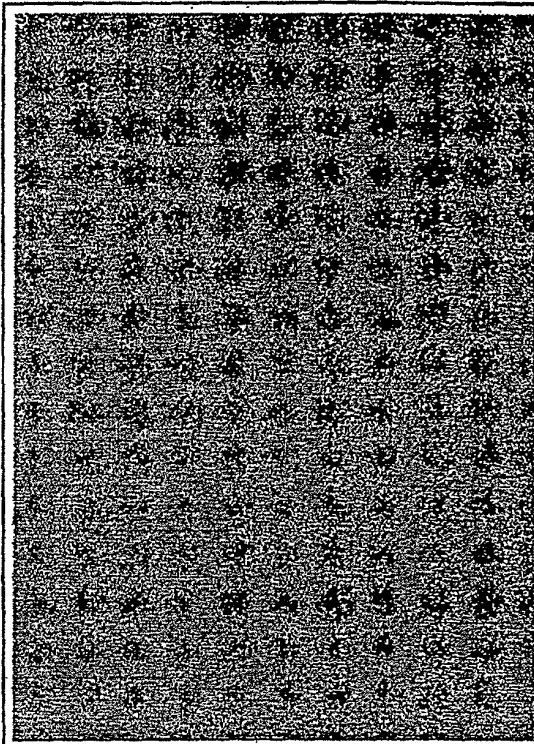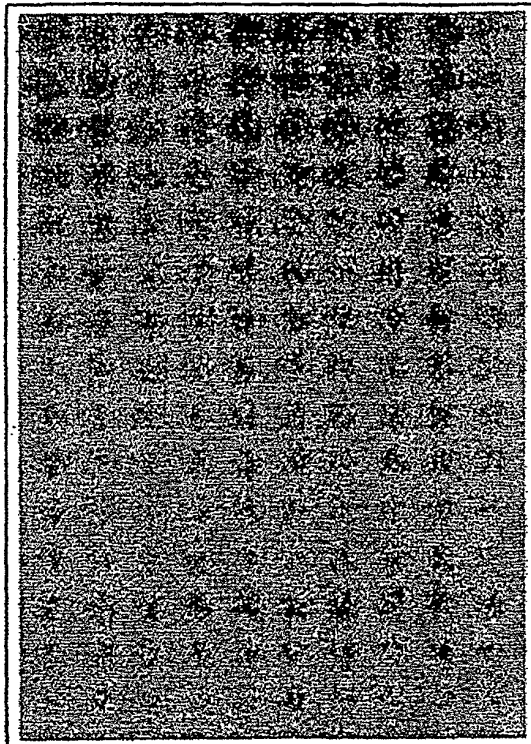
C.MK alone

D.H3-GFP-hIL6 alone

FIG.8
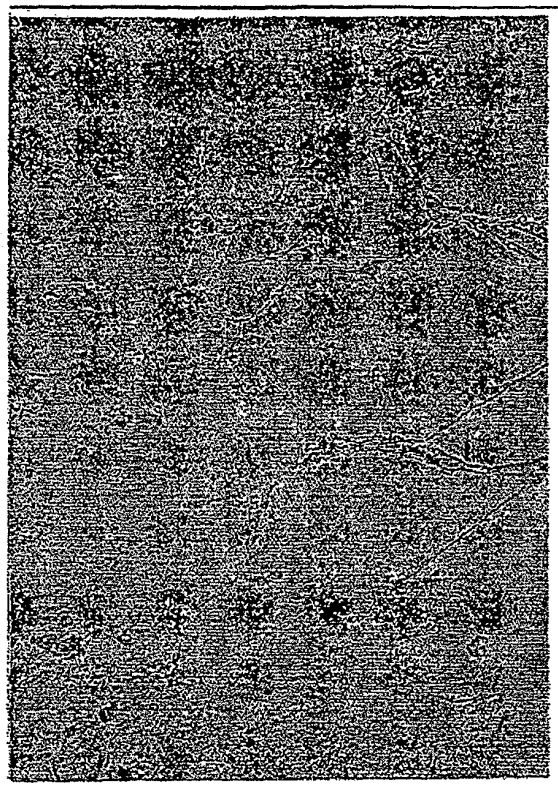
A.MK (MK+H3-LC)   B.H3-LC (MK+H3-LC)
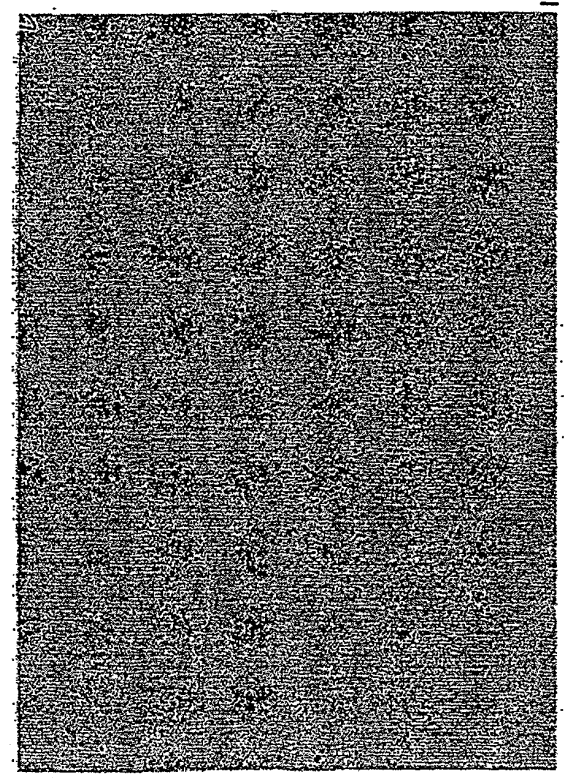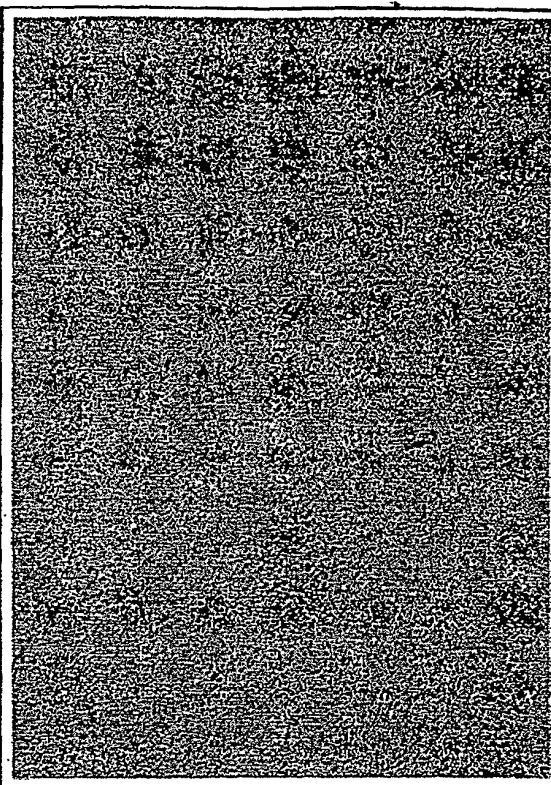
C.MK alone   FIG.9   D.H3-LC alone
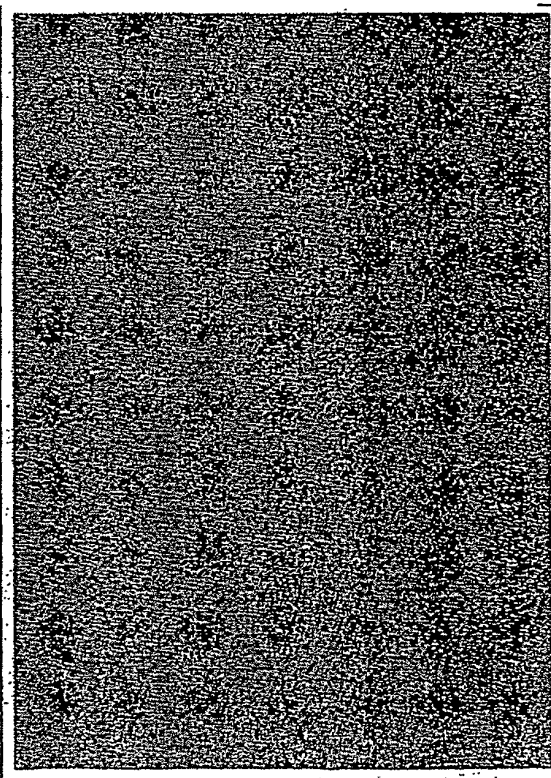
A.Sk (Sk+H3-GFP)
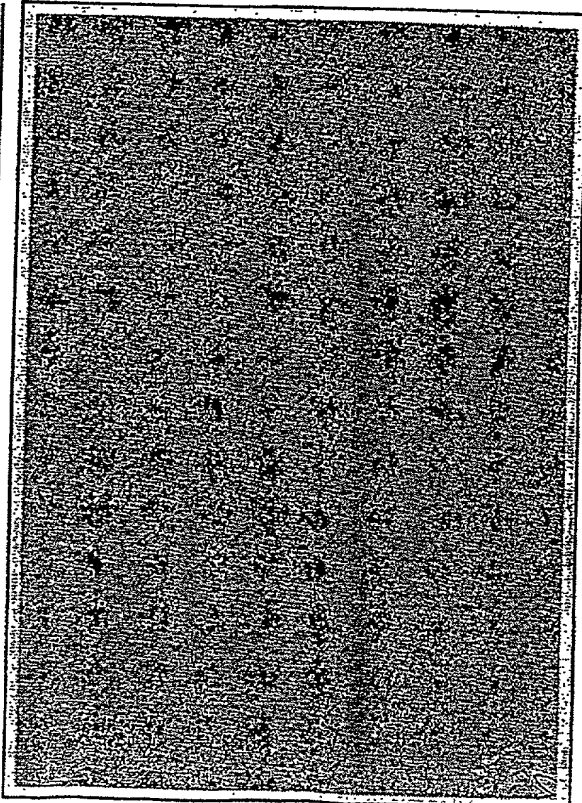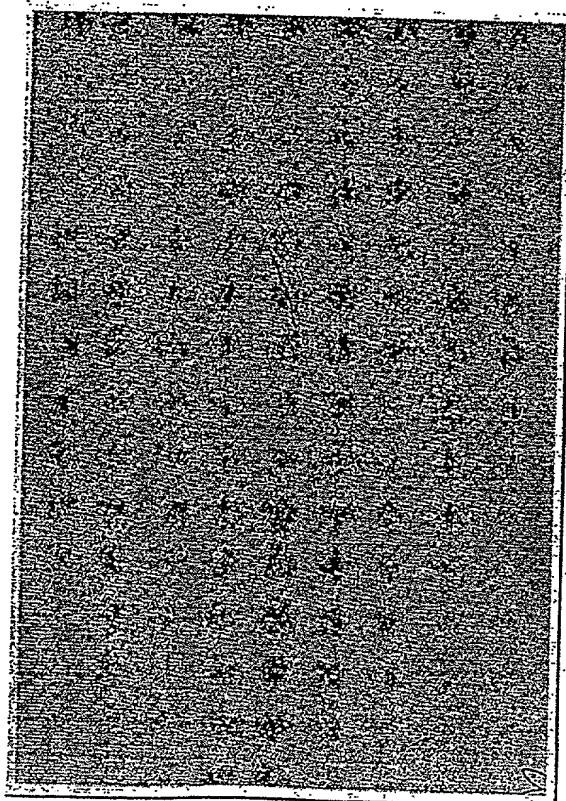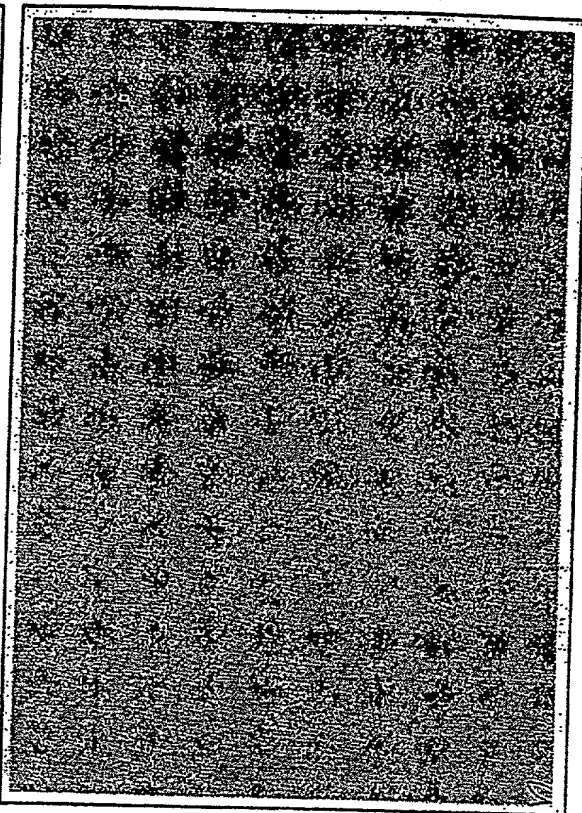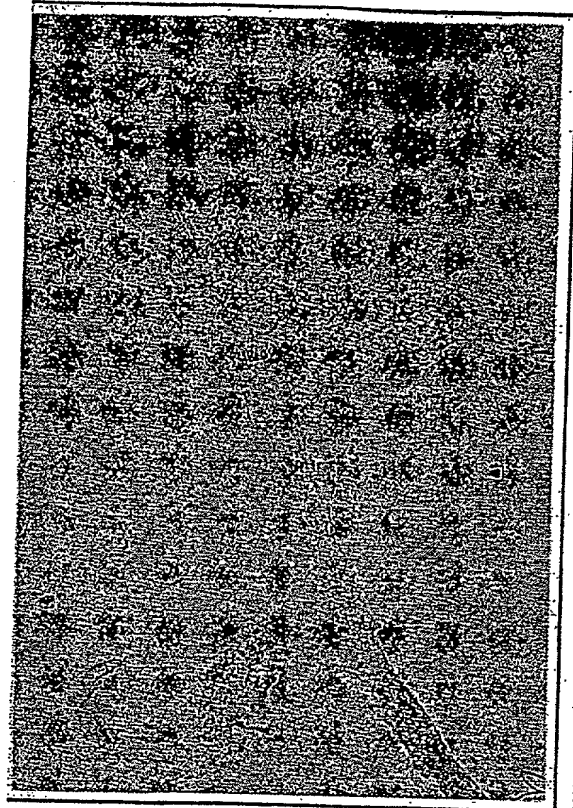
B.H3-GFP (Sk+H3-GFP)

C.Sk alone

D.H3-GFP alone

FIG.10

A. SK (Sk+H3-GFP-hIL6) - 13/56 - B. H3-GFP-hIL6 (Sk+H3-GFP-hIL6)
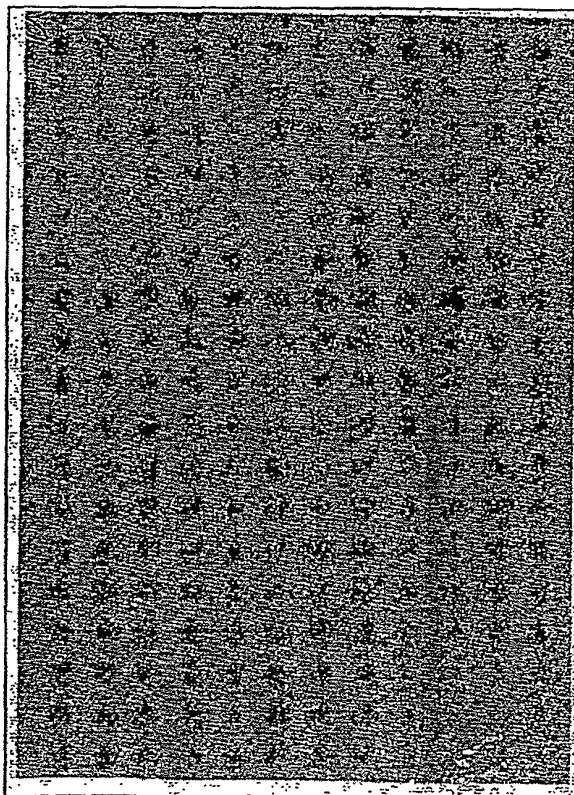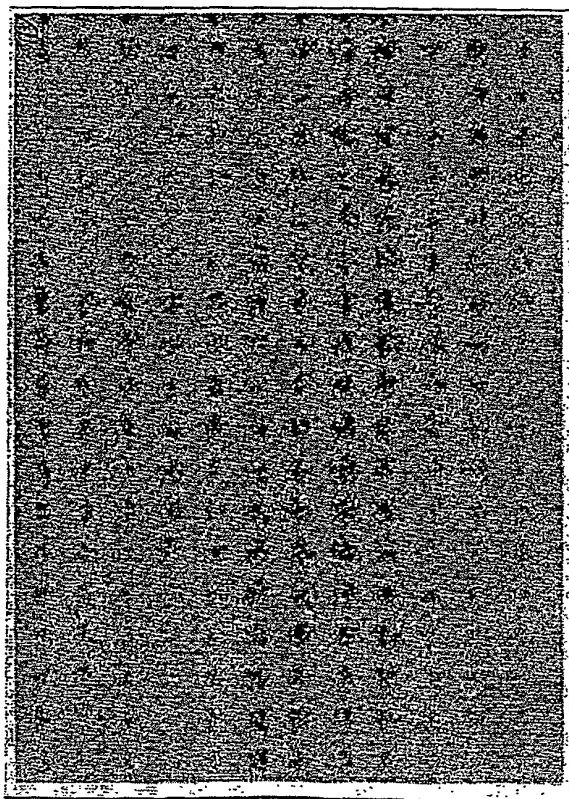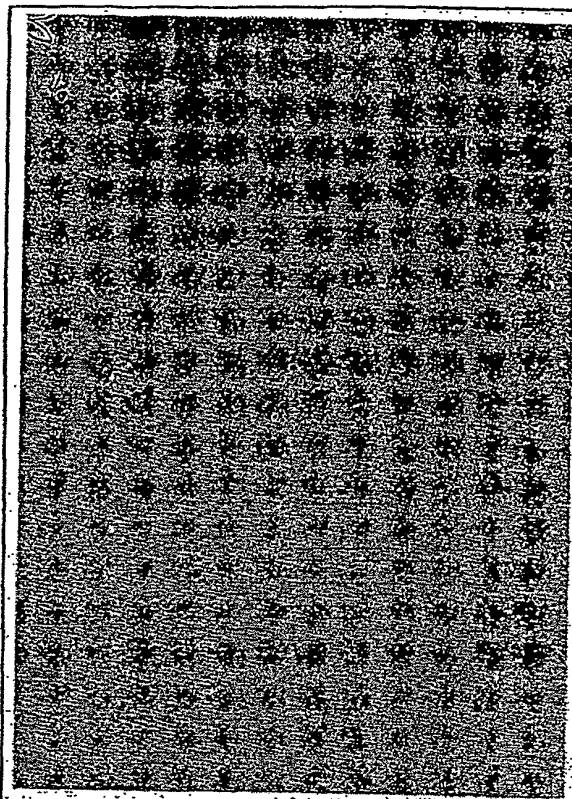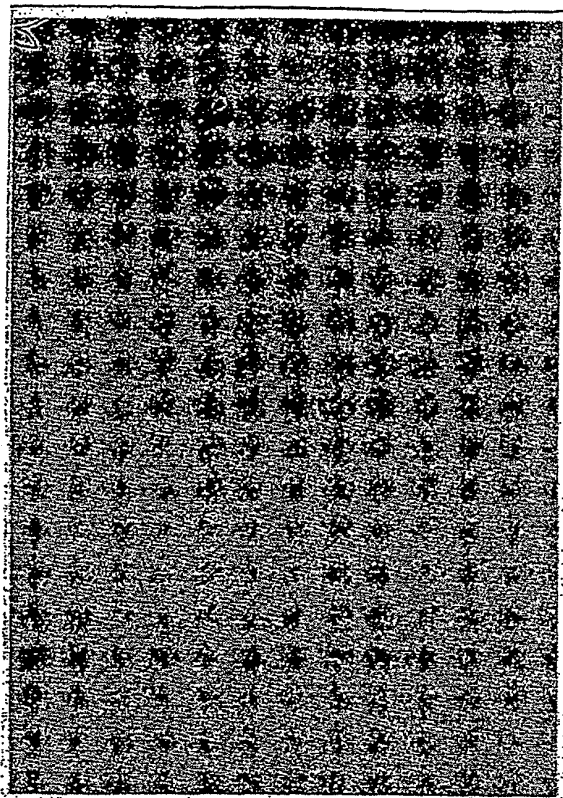
C. Sk alone

D.H3-GFP-hIL6 alone

FIG.11

A. Sk (Sk+H3-LC)

B. H3-LC (Sk+H3-LC)
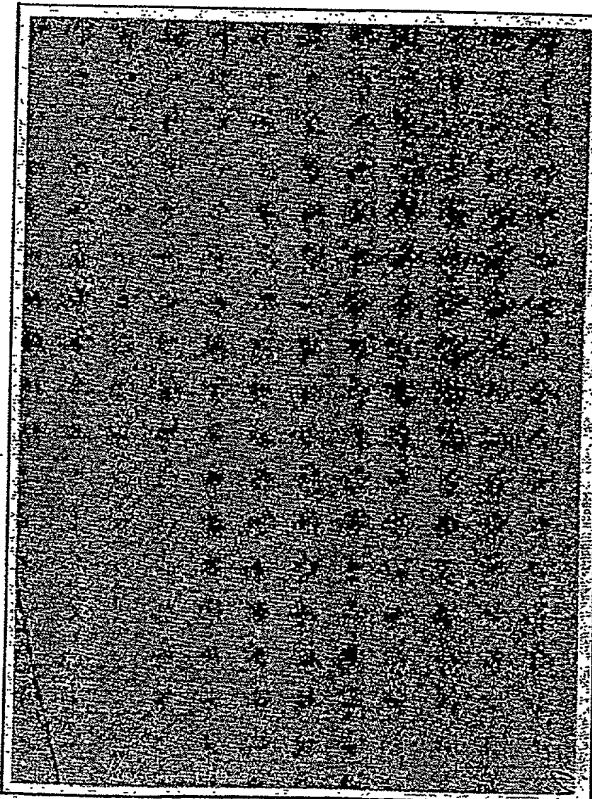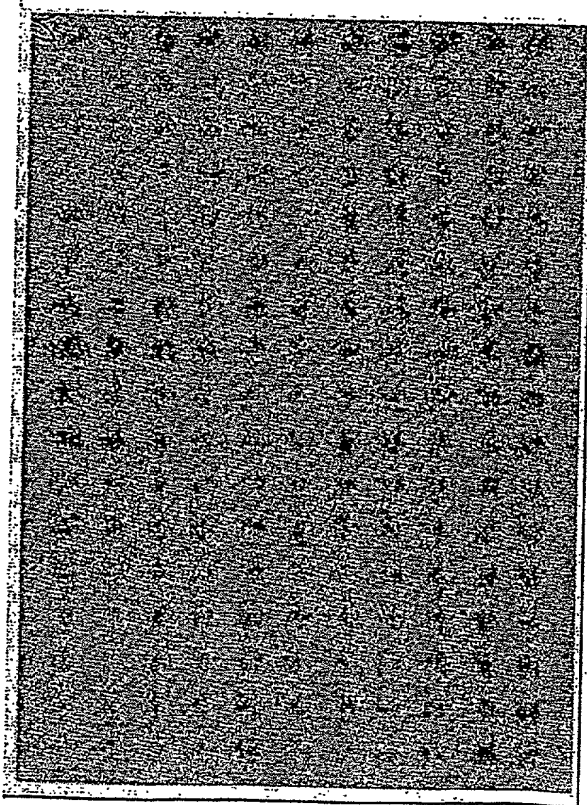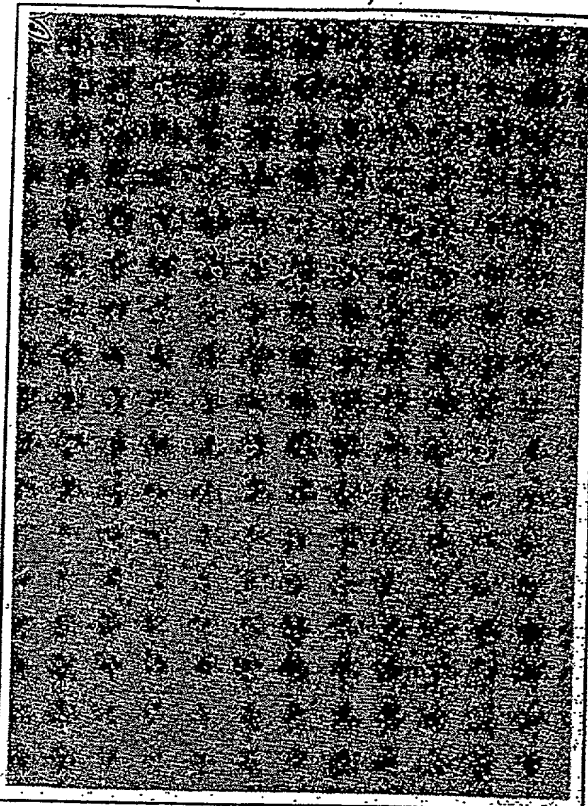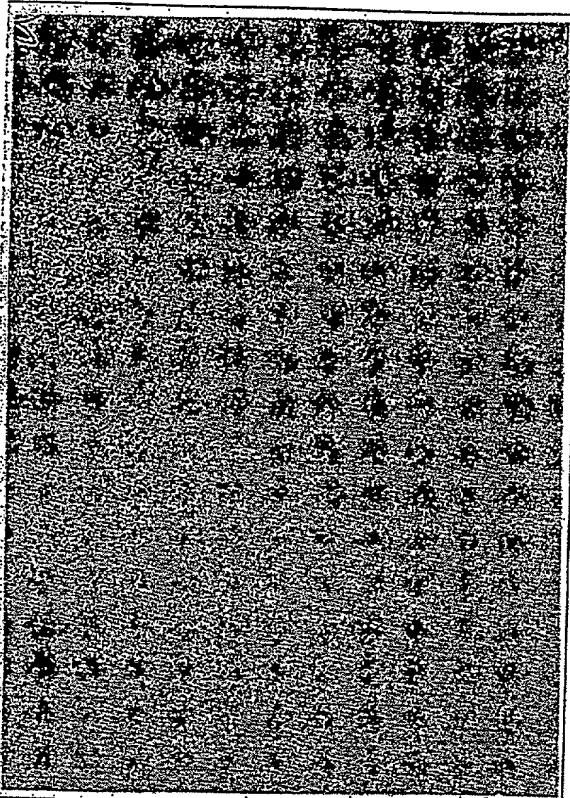
C. Sk alone

D. H3-LC alone

FIG.12

A. Sk (Sk+MK)

B. MK (Sk+MK)
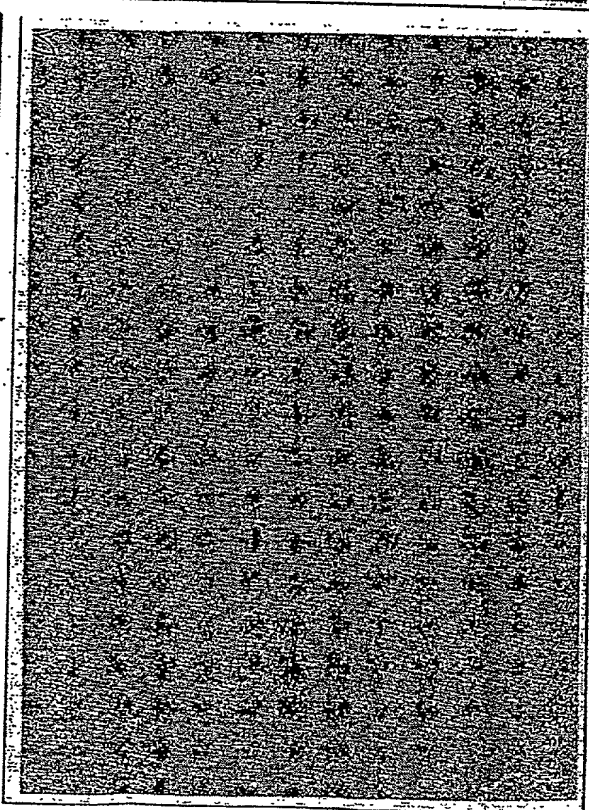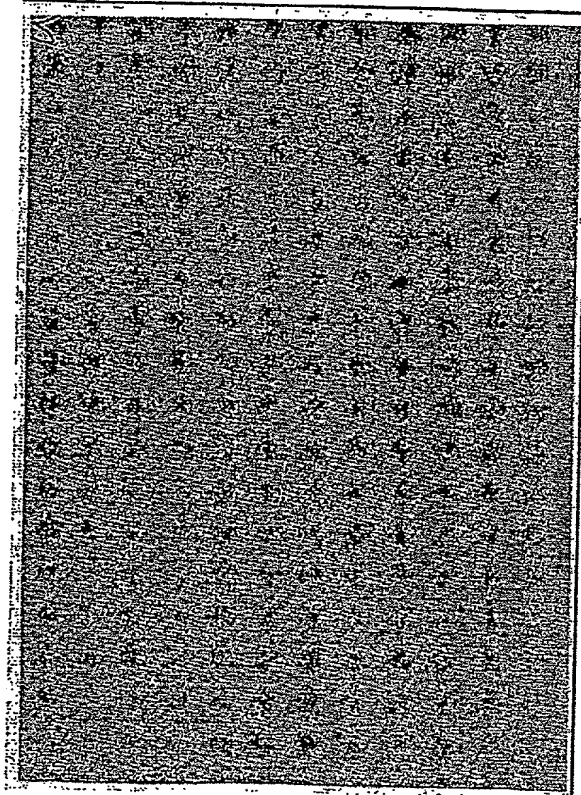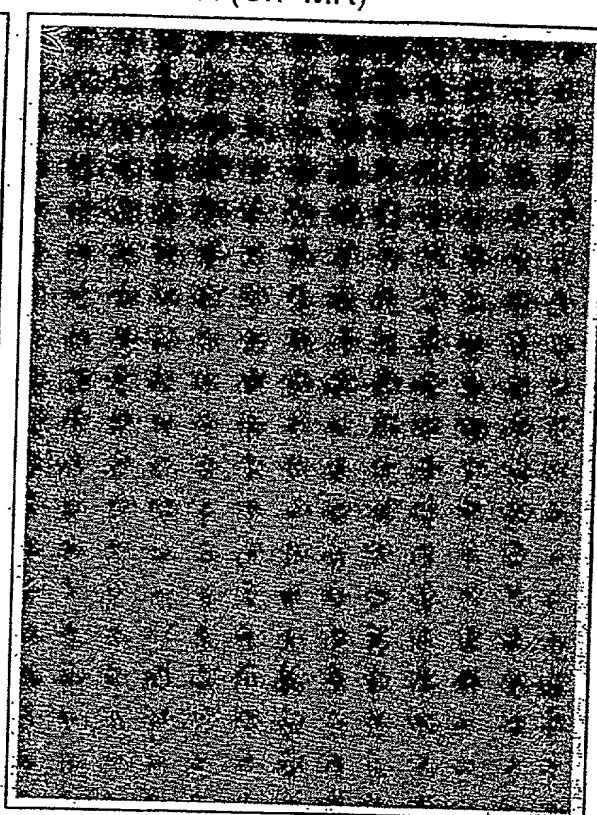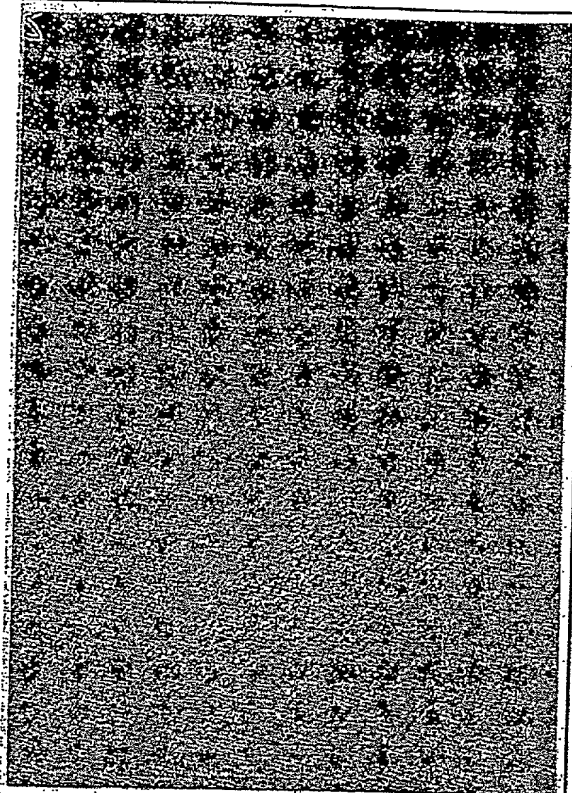
C. Sk alone

D. MK alone

FIG.13
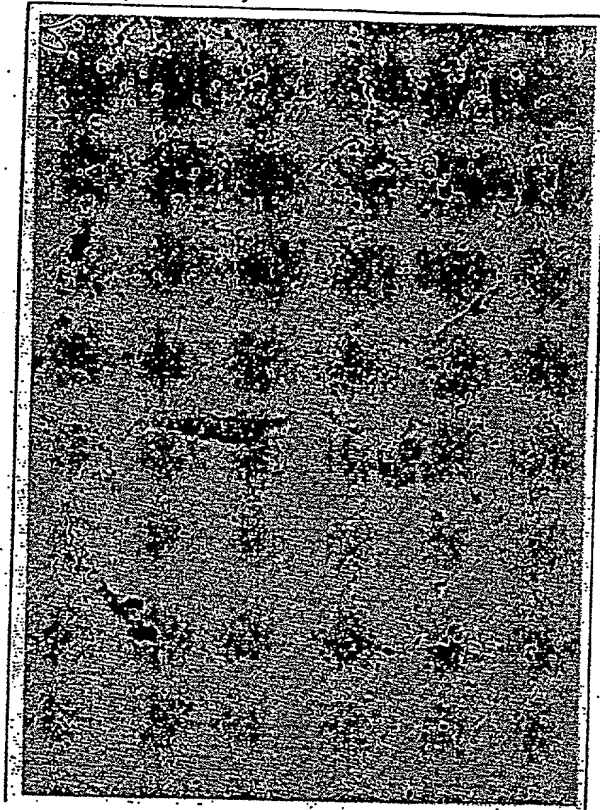
A.Lg (Lg+L14)

B. L14 (Lg+L14)
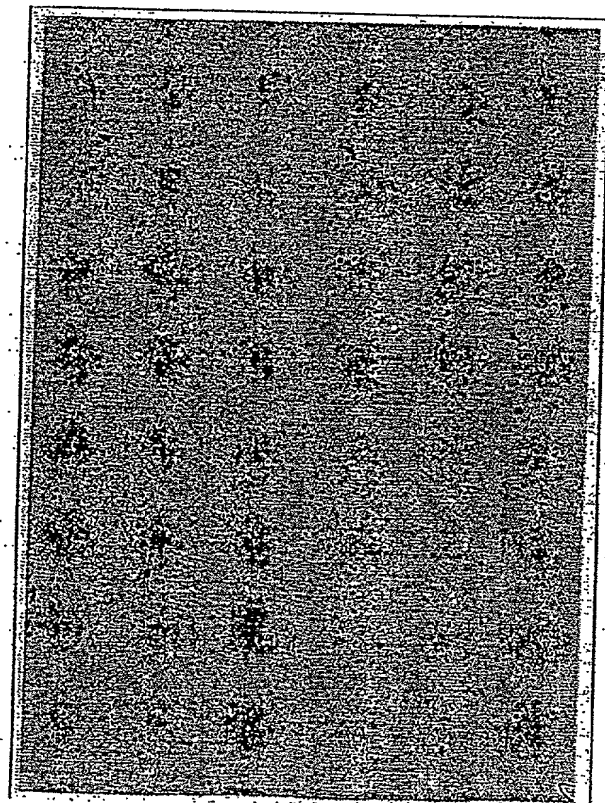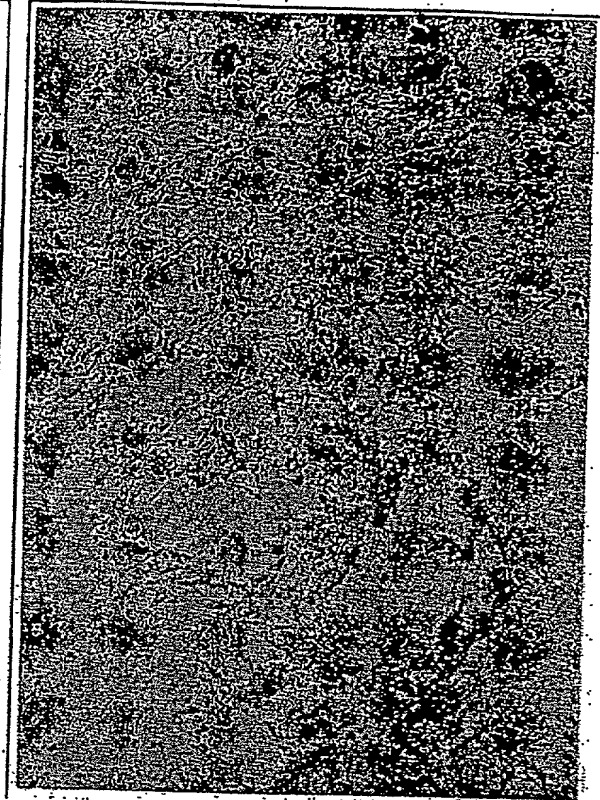
C. Lg alone
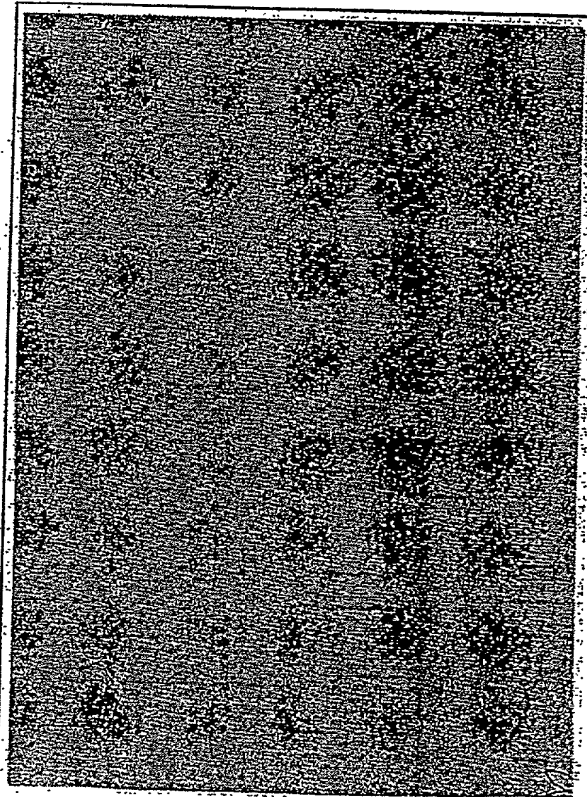
D. L14 alone

FIG.14

A. Lg (Lg+L14-hIL3)

B. L14-hIL3 (Lg+L14-hIL3)
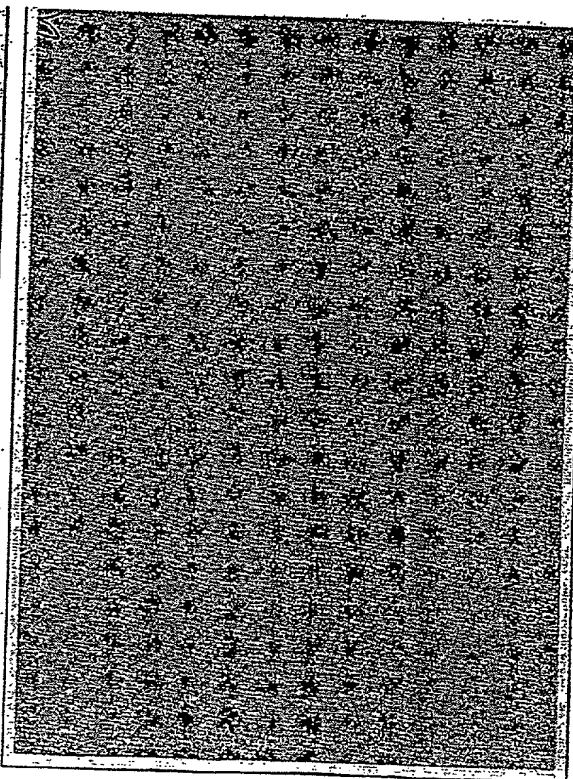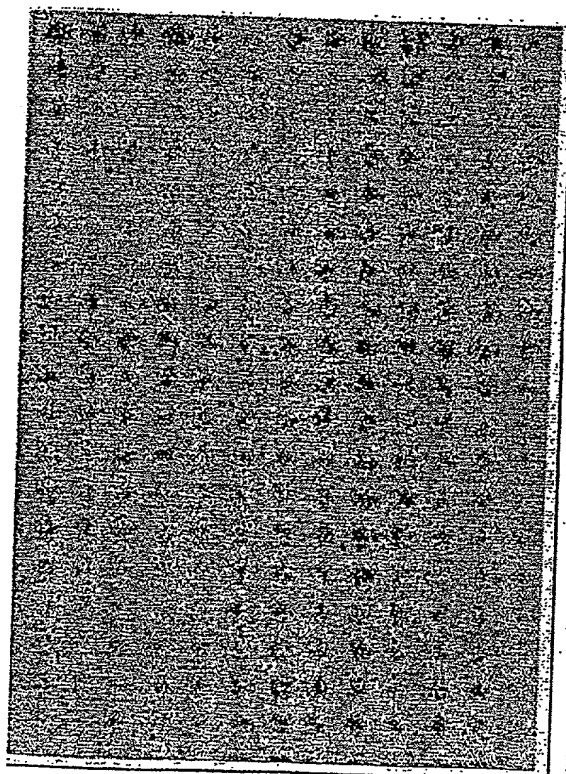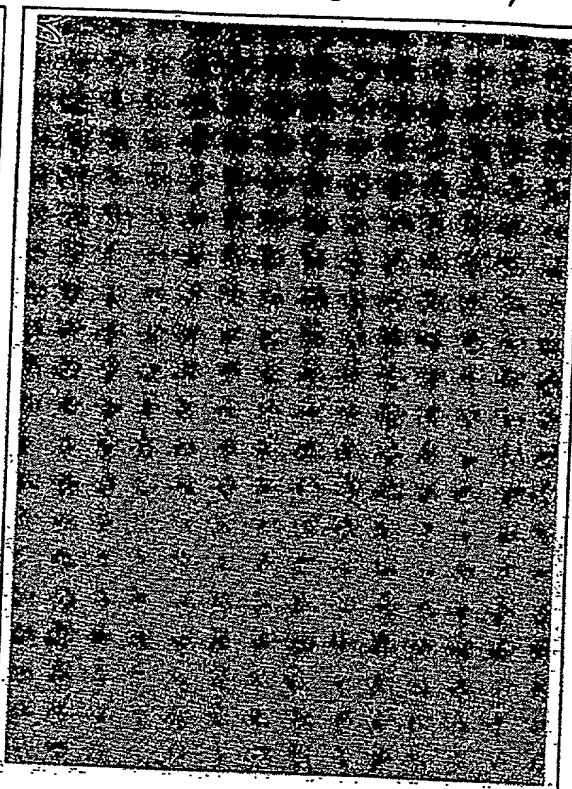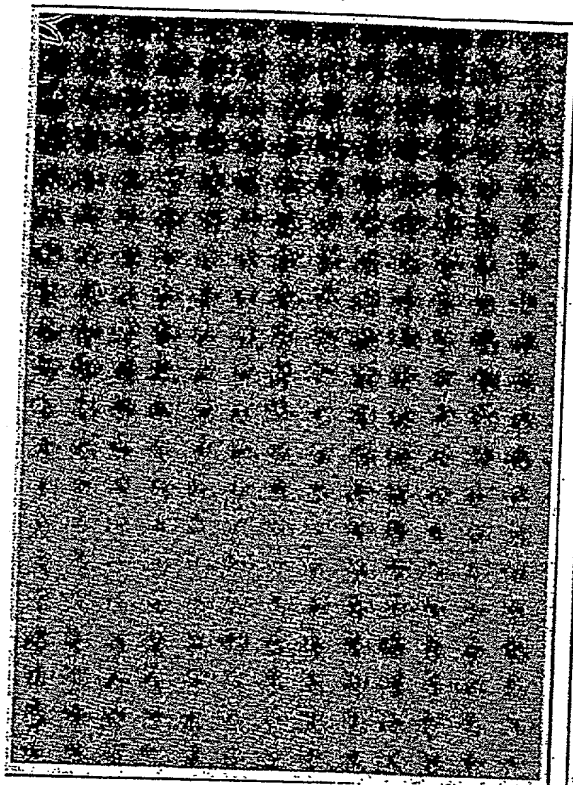
C. Lg alone

D.L14-hIL3 alone

FIG.15

FIG.16

Fig. 17

pD12JCVPlong-hCNTF
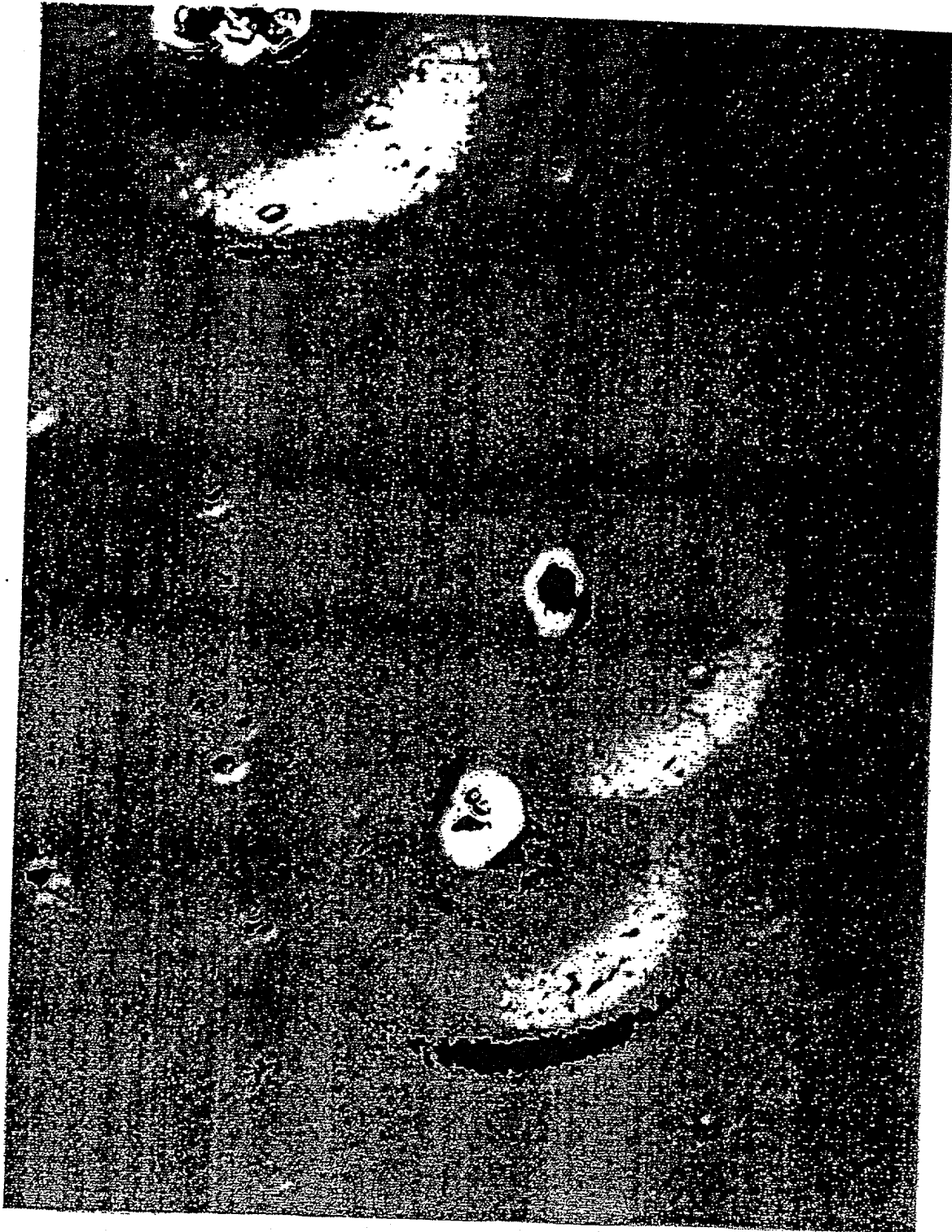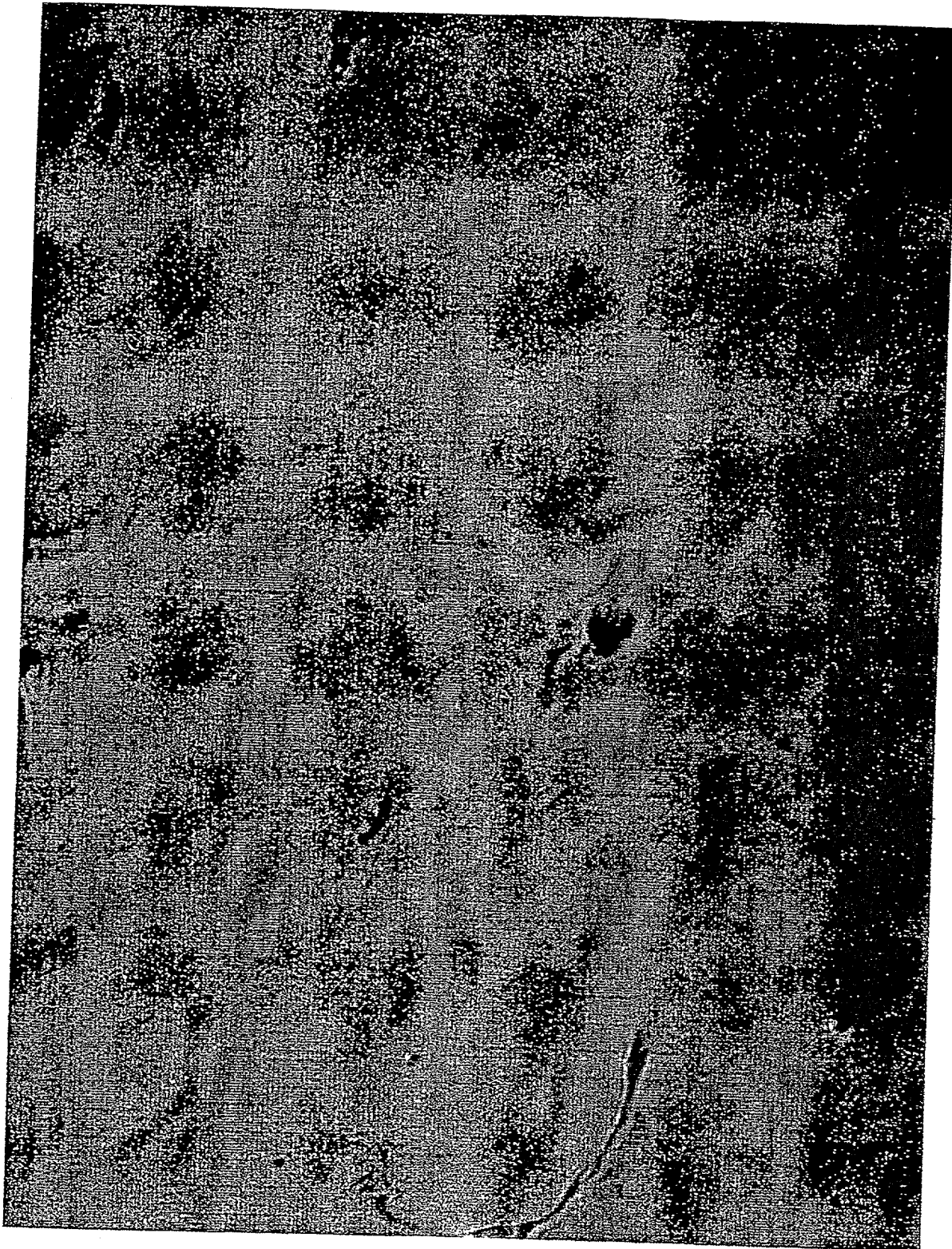
Length: 7969 July 22, 1999

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  51  AGAGTCGAGC TGTGACGGTC CTTACAATGA AATGCANCTG GGTTATCTTC

 101  TTCCTGATGG CAGGGGTTAC AGGTAAGGGG CTCCCAAGTC CCAAACTTGA

 151  GGGTCCATAA ACTCTGTGAC AGTGGCAATC ACTTTGCCTT TCTTTCTACA

 201  GGGGTGAATT CGGCTTTCAC AGAGCATTCA CCGCTGACCC CTCACCGTCG

 251  GGACCTCTGT AGCCGCTCTA TCTGGCTAGC AAGGAAGATT CGTTCAGACC

 301  TTGACTGCTC TTACGGAATC CTATGTAAGT TGCCTATTTT GCTGTTATCT

 351  GTTTTCCCTT CATCTTTTTT GATCCAGCAA CTTACCATCA CGCATCAGCT

 401  CCATTACCAA TTGTGAAAGC TCTAATCATA TAGTCATTCA TATAGGTTAT

 451  TTGACATGGG CCCTTCCCTT GAGGAAACCC ATGTGACTTT ATTTTCTTCC

 501  TCTGGGCTGT TTAGGAGATG AAGTTACTTG AATGAGAAAA TATATATGGA

 551  GTTCTAGAAA GGATTGGTTT ATATGTCTTG GAGGCTATTT CAAAATTTAT

 601  TTGGCCATAT ATTCTGAATA CTACCTAGAA CAGATTAGCC ATGGGCCCTN

 651  TGGGTTNTTC ATAAGCCATT GTTCTGAANT TTTTTAGCTT TGTAAATGAA

 701  AGGTTTATGG GATAGGAAGA GTNCTATGAA CGTGGGAGGA ATTTGTAAAT

 751  CCTACCAATT TNTNCTATAT AGCATTAGCC CCCACCTTTT ANTATTCTGC

 801  ATCAAAAGTA AGATTGTGTC TAAAGAGAAA GGTNAGCTAT CAAAAGGACT

 851  CCTATAANAT TCNTTGGAAA CTTNTGGAAN TGTCAAATTT NTTTGAGCTA

 901  ATTNTTGGAG TTCCAAANTT TGTCTTNTNA CAGTNAAGGG GGANCCCCAT

 951  TCANATTTNC CCCCCTNNNG ANAATGCTTG GGGGAAAAAA CCTNCCAACC

1001  CCNTTGTGGG ANGAAGTTTT TTTAANNTTT TAAGGCTNGN NGAAACNGGN

1051  TTTTAATTTT TTGGGNCNAN CGCCTNTCCC CGGTACCAGG AAAATCAGGA

1101  CCTNTTTTTG GGGNNGNGCN CCNACNGGGG GGNAAAANGG GAAATTTCNT

1151  CANAAAAAAT CTTTTCCGnn nnnngtgaag catcagggcc tgaacaagaa

1201  catcaacctg gactctgcgg atgggatgcc agtggcaagc actgatcagt

1251  ggagtgagct gaccgaggca gagcgactcc aagagaacct tcaagcttat
```

Fig. 18

```
1301  cgtaccttcc atgttttgtt ggccaggctc ttagaagacc agcaggtgca

1351  ttttacccca accgaaggtg acttccatca agctatacat acccttcttc

1401  tccaagtcgc tgcctttgca taccagatag aggagttaat gatactcctg

1451  gaatacaaga tcccccgcaa tgaggctgat gggatgccta ttaatgttgg

1501  agatggtggt ctctttgaga agaagctgtg gggcctaaag gtgctgcagg

1551  agctttcaca gtggacagta aggtccatcc atgaccttcg tttcatttct

1601  tctcatcaga ctgggatccc agcacgtggg agccattata ttgctaacaa

1651  caagaaaatg tagnnnnngc ggccTGCGCC GTCTTTCCCG ACGTTAAAGG

1701  GATGAAACCA CAAGACTTAC CTTCGCTCGG AAGTAAAACG ACAAACACAC

1751  ACAGTTTTGC CCGTTTTCAT GAGAAATGGG ACGTCTGCGC ACGAAACGCG

1801  CCGTCGCTTG AGGAGGACTT GTACAAACAC GATCTATGCA GGTTTCCCCA

1851  ACTGACACAA ACCGTGCAAC TTGAAACTCC GCCTGGTCTT TCCAGGTCTA

1901  GAGGGGTAAC ATTTTGTACT GTGTTTGACT CCACGCTCGA TCCACTAGCG

1951  AGTGTTAGTA GCGGTACTGC TGTCTCGTAG CGGAGCATGT TGGCCGTGGG

2001  AACACCTCCT TGGTAACAAG GACCCACGGG GCCGAAAGCC ATGTCCTAAC

2051  GGACCCAACA TGTGTGCAAC CCCAGCACGG CAGCTTTACT GTGAAACCCA

2101  CTTCAAGGTG ACATTGATAC TGGTACTCAA ACACTGGTGA CAGGCTAAGG

2151  ATGCCCTTCA GGTACCCCGA GGTAACAAGC GACACTCGGG ATCTGAGAAG

2201  GGGACTGGGA CTTCTTTAAA GTGCCCAGTT TAAAAAGCTT CTACGCCTGA

2251  ATAGGTGACC GGAGGCCGGC ACCTTTCCTT TTATAACCAC TGAACACATG

2301  GAAGACGCCA AAAACATAAA GAAAGGCCCG GCGCCATTCT ATCCTCTAGA

2351  GGATGGAACC GCTGGAGAGC AACTGCATAA GGCTATGAAG AGATACGCCC

2401  TGGTTCCTGG AACAATTGCT TTTACAGATG CACATATCGA GGTGAACATC

2451  ACGTACGCGG AATACTTCGA AATGTCCGTT CGGTTGGCAG AAGCTATGAA

2501  ACGATATGGG CTGAATACAA ATCACAGAAT CGTCGTATGC AGTGAAAACT

2551  CTCTTCAATT CTTTATGCCG GTGTTGGGCG CGTTATTTAT CGGAGTTGCA

2601  GTTGCGCCCG CGAACGACAT TTATAATGAA CGTGAATTGC TCAACAGTAT

2651  GAACATTTCG CAGCCTACCG TAGTGTTTGT TTCCAAAAAG GGGTTGCAAA
```

Fig. 18

```
2701   AAATTTTGAA CGTGCAAAAA AAATTACCAA TAATCCAGAA AATTATTATC

2751   ATGGATTCTA AAACGGATTA CCAGGGATTT CAGTCGATGT ACACGTTCGT

2801   CACATCTCAT CTACCTCCCG GTTTTAATGA ATACGATTTT GTACCAGAGT

2851   CCTTTGATCG TGACAAAACA ATTGCACTGA TAATGAATTC CTCTGGATCT

2901   ACTGGGTTAC CTAAGGGTGT GGCCCTTCCG CATAGAACTG CCTGCGTCAG

2951   ATTCTCGCAT GCCAGAGATC CTATTTTTGG CAATCAAATC ATTCCGGATA

3001   CTGCGATTTT AAGTGTTGTT CCATTCCATC ACGGTTTTGG AATGTTTACT

3051   ACACTCGGAT ATTTGATATG TGGATTTCGA GTCGTCTTAA TGTATAGATT

3101   TGAAGAAGAG CTGTTTTTAC GATCCCTTCA GGATTACAAA ATTCAAAGTG

3151   CGTTGCTAGT ACCAACCCTA TTTTCATTCT TCGCCAAAAG CACTCTGATT

3201   GACAAATACG ATTTATCTAA TTTACACGAA ATTGCTTCTG GGGGCGCACC

3251   TCTTTCGAAA GAAGTCGGGG AAGCGGTTGC AAAACGCTTC CATCTTCCAG

3301   GGATACGACA AGGATATGGG CTCACTGAGA CTACATCAGC TATTCTGATT

3351   ACACCCGAGG GGGATGATAA ACCGGGCGCG GTCGGTAAAG TTGTTCCATT

3401   TTTTGAAGCG AAGGTTGTGG ATCTGGATAC CGGGAAAACG CTGGGCGTTA

3451   ATCAGAGAGG CGAATTATGT GTCAGAGGAC CTATGATTAT GTCCGGTTAT

3501   GTAAACAATC CGGAAGCGAC CAACGCCTTG ATTGACAAGG ATGGATGGCT

3551   ACATTCTGGA GACATAGCTT ACTGGGACGA AGACGAACAC TTCTTCATAG

3601   TTGACCGCTT GAAGTCTTTA ATTAAATACA AAGGATATCA GGTGGCCCCC

3651   GCTGAATTGG AATCGATATT GTTACAACAC CCCAACATCT TCGACGCGGG

3701   CGTGGCAGGT CTTCCCGACG ATGACGCCGG TGAACTTCCC GCCGCCGTTG

3751   TTGTTTTGGA GCACGGAAAG ACGATGACGG AAAAAGAGAT CGTGGATTAC

3801   GTCGCCAGTC AAGTAACAAC CGCGAAAAAG TTGCGCGGAG GAGTTGTGTT

3851   TGTGGACGAA GTACCGAAAG GTCTTACCGG AAAACTCGAC GCAAGAAAAA

3901   TCAGAGAGAT CCTCATAAAG GCCAAGAAGG GCGGAAAGTC CAAATTGTAA

3951   AATGTAACTG TATTCAGCGA TGACGAAATT CTTAGCTATT GTAATGACTC

4001   TAGAGGATCT TTGTGAAGGA ACCTTACTTC TGTGGTGTGA CATAATTGGA

4051   CAAACTACCT ACAGAGATTT AAAGCTCTAA GGTAAATATA AAATTTTTAA
```

Fig. 18

```
4101   GTGTATAATG TGTTAAACTA CTGATTCTAA TTGTTTGTGT ATTTTAGATT

4151   CCAACCTATG GAACTGATGA ATGGGAGCAG TGGTGGAATG CCTTTAATGA

4201   GGAAAACCTG TTTTGCTCAG AAGAAATGCC ATCTAGTGAT GATGAGGCTA

4251   CTGCTGACTC TCAACATTCT ACTCCTCCAA AAAAGAAGAG AAAGGTAGAA

4301   GACCCCAAGG ACTTTCCTTC AGAATTGCTA AGTTTTTTGA GTCATGCTGT

4351   GTTTAGTAAT AGAACTCTTG CTTGCTTTGC TATTTACACC ACAAAGGAAA

4401   AAGCTGCACT GCTATACAAG AAAATTATGG AAAAATATTC TGTAACCTTT

4451   ATAAGTAGGC ATAACAGTTA TAATCATAAC ATACTGTTTT TTCTTACTCC

4501   ACACAGGCAT AGAGTGTCTG CTATTAATAA CTATGCTCAA AAATTGTGTA

4551   CCTTTAGCTT TTTAATTTGT AAAGGGGTTA ATAAGGAATA TTTGATGTAT

4601   AGTGCCTTGA CTAGAGATCA TAATCAGCCA TACCACATTT GTAGAGGTTT

4651   TACTTGCTTT AAAAAACCTC CCACACCTCC CCCTGAACCT GAAACATAAA

4701   ATGAATGCAA TTGTTGTTGT TAACTTGTTT ATTGCAGCTT ATAATGGTTA

4751   CAAATAAAGC AATAGCATCA CAAATTTCAC AAATAAAGCA TTTTTTTCAC

4801   TGCATTCTAG TTGTGGTTTG TCCAAACTCA TCAATGTATC TTATCATGTC

4851   TGGATCCCCG GGTCCCTATA GTGAGTCGTA TTAGCTTGGC GTAATCATGG

4901   TCATAGCTGT TTCCTGTGTG AAATTGTTAT CCGCTCACAA TTCCACACAA

4951   CATACGAGCC GGAAGCATAA AGTGTAAAGC CTGGGGTGCC TAATGAGTGA

5001   GCTAACTCAC ATTAATTGCG TTGCGCTCAC TGCCCGCTTT CCAGTCGGGA

5051   AACCTGTCGT GCCAGCTGCA TTAATGAATC GGCCAACGCG CGGGGAGAGG

5101   CGGTTTGCGT ATTGGGCGCT CTTCCGCTTC CTCGCTCACT GACTCGCTGC

5151   GCTCGGTCGT TCGGCTGCGG CGAGCGGTAT CAGCTCACTC AAAGGCGGTA

5201   ATACGGTTAT CCACAGAATC AGGGGATAAC GCAGGAAAGA ACATGTGAGC

5251   AAAAGGCCAG CAAAAGGCCA GGAACCGTAA AAAGGCCGCG TTGCTGGCGT

5301   TTTTCCATAG GCTCCGCCCC CCTGACGAGC ATCACAAAAA TCGACGCTCA

5351   AGTCAGAGGT GGCGAAACCC GACAGGACTA TAAAGATACC AGGCGTTTCC

5401   CCCTGGAAGC TCCCTCGTGC GCTCTCCTGT TCCGACCCTG CCGCTTACCG

5451   GATACCTGTC CGCCTTTCTC CCTTCGGGAA GCGTGGCGCT TTCTCAATGC
```

Fig. 18

```
5501  TCACGCTGTA GGTATCTCAG TTCGGTGTAG GTCGTTCGCT CCAAGCTGGG

5551  CTGTGTGCAC GAACCCCCCG TTCAGCCCGA CCGCTGCGCC TTATCCGGTA

5601  ACTATCGTCT TGAGTCCAAC CCGGTAAGAC ACGACTTATC GCCACTGGCA

5651  GCAGCCACTG GTAACAGGAT TAGCAGAGCG AGGTATGTAG GCGGTGCTAC

5701  AGAGTTCTTG AAGTGGTGGC CTAACTACGG CTACACTAGA AGGACAGTAT

5751  TTGGTATCTG CGCTCTGCTG AAGCCAGTTA CCTTCGGAAA AAGAGTTGGT

5801  AGCTCTTGAT CCGGCAAACA AACCACCGCT GGTAGCGGTG GTTTTTTTGT

5851  TTGCAAGCAG CAGATTACGC GCAGAAAAAA AGGATCTCAA GAAGATCCTT

5901  TGATCTTTTC TACGGGGTCT GACGCTCAGT GGAACGAAAA CTCACGTTAA

5951  GGGATTTTGG TCATGAGATT ATCAAAAAGG ATCTTCACCT AGATCCTTTT

6001  AAATTAAAAA TGAAGTTTTA AATCAATCTA AGTATATAT GAGTAAACTT

6051  GGTCTGACAG TTACCAATGC TTAATCAGTG AGGCACCTAT CTCAGCGATC

6101  TGTCTATTTC GTTCATCCAT AGTTGCCTGA CTCCCCGTCG TGTAGATAAC

6151  TACGATACGG GAGGGCTTAC CATCTGGCCC CAGTGCTGCA ATGATACCGC

6201  GAGACCCACG CTCACCGGCT CCAGATTTAT CAGCAATAAA CCAGCCAGCC

6251  GGAAGGGCCG AGCGCAGAAG TGGTCCTGCA ACTTTATCCG CCTCCATCCA

6301  GTCTATTAAT TGTTGCCGGG AAGCTAGAGT AAGTAGTTCG CCAGTTAATA

6351  GTTTGCGCAA CGTTGTTGCC ATTGCTACAG GCATCGTGGT GTCACGCTCG

6401  TCGTTTGGTA TGGCTTCATT CAGCTCCGGT TCCCAACGAT CAAGGCGAGT

6451  TACATGATCC CCCATGTTGT GCAAAAAAGC GGTTAGCTCC TTCGGTCCTC

6501  CGATCGTTGT CAGAAGTAAG TTGGCCGCAG TGTTATCACT CATGGTTATG

6551  GCAGCACTGC ATAATTCTCT TACTGTCATG CCATCCGTAA GATGCTTTTC

6601  TGTGACTGGT GAGTACTCAA CCAAGTCATT CTGAGAATAG TGTATGCGGC

6651  GACCGAGTTG CTCTTGCCCG CGTCAATAC GGGATAATAC CGCGCCACAT

6701  AGCAGAACTT TAAAAGTGCT CATCATTGGA AAACGTTCTT CGGGGCGAAA

6751  ACTCTCAAGG ATCTTACCGC TGTTGAGATC CAGTTCGATG TAACCCACTC

6801  GTGCACCCAA CTGATCTTCA GCATCTTTTA CTTTCACCAG CGTTTCTGGG

6851  TGAGCAAAAA CAGGAAGGCA AAATGCCGCA AAAAAGGGAA TAAGGGCGAC
```

Fig. 18

```
6901  ACGGAAATGT TGAATACTCA TACTCTTCCT TTTTCAATAT TATTGAAGCA

6951  TTTATCAGGG TTATTGTCTC ATGAGCGGAT ACATATTTGA ATGTATTTAG

7001  AAAAATAAAC AAATAGGGGT TCCGCGCACA TTTCCCCGAA AAGTGCCACC

7051  TGACGTCTAA GAAACCATTA TTATCATGAC ATTAACCTAT AAAAATAGGC

7101  GTATCACGAG GCCCTTTCGT CTCGCGCGTT TCGGTGATGA CGGTGAAAAC

7151  CTCTGACACA TGCAGCTCCC GGAGACGGTC ACAGCTTGTC TGTAAGCGGA

7201  TGCCGGGAGC AGACAAGCCC GTCAGGGCGC GTCAGCGGGT GTTGGCGGGT

7251  GTCGGGGCTG GCTTAACTAT GCGGCATCAG AGCAGATTGT ACTGAGAGTG

7301  CACCATATGC GGTGTGAAAT ACCGCACAGA TGCGTAAGGA GAAAATACCG

7351  CATCAGGCGC CATTCGCCAT TCAGGCTGCG CAACTGTTGG GAAGGGCGAT

7401  CGGTGCGGGC CTCTTCGCTA TTACGCCAGC TGGCGAAAGG GGGATGTGCT

7451  GCAAGGCGAT TAAGTTGGGT AACGCCAGGG TTTTCCCAGT CACGACGTTG

7501  TAAAACGACG GCCAGTGAAT TCGACCTGC AGTCGACAGA AGCCTTACGT

7551  GACAGCTGGC GAAGAACCAT GGCCAGCTGG TGACAAGCCA AAACAGCTCT

7601  GGCTCGCAAA ACATGTTCCC TTGGCTGCTT TCCACTTCCC CTTGTGCTTT

7651  GTTTACTTGT GTCAGCTGGT TGGCTCCCTA GGTATGAGCT CATGCTTGGC

7701  TGGCAGCCAT CCAGTTTTAG CCAGCTCTGC TTTGTTTACT TGTGTCAGCT

7751  GGTTGGCTCC CTAGGTATGA GCTCATGCTT GGCTGGCAGC CATCCAGTTT

7801  TAGCCAGCTC CTCCCTACCT TCCCTTTTTT TTATATATAC AGGAGGCCGA

7851  GGCCGCCTCC GCCTCCAAGC TTACTCAGAA GTAGTAAGGG CGTGGAGGCT

7901  TTTTAGGAGG CCAGGGAAAT TCCCTTGTTT TTCCCTTTTT TGCAGTAATT

7951  TTTTGCTGCA AAAAGCTAA
```

Fig. 18

JCVPlong-gdnf Length: 6971 June 8, 1999 16:42 Type: N Check: 3588 ..
```
   1  GCTAGCGATT TAGGTGACAC TATAGAATAG ATCCCCATGA AGTTATGGGA
  51  TGTCGTGGCT GTCTGCCTGG TGCTGCTCCA CACCGCGTCC GCCTTCCCGC
 101  TGCCCGCCGG TAAGAGGCCT CCCGAGGCGC CCGCCGAAGA CCGCTCCCTC
 151  GGCCGCCGCC GCGCGCCCTT CGCGCTGAGC AGTGACTCAA ATATGCCAGA
 201  GGATTATCCT GATCAGTTCG ATGATGTCAT GGATTTTATT CAAGCCACCA
 251  TTAAAAGACT GAAAAGGTCA CCAGATAAAC AAATGGCAGT GCTTCCTAGA
 301  AGAGAGCGGA ATCGGCAGGC TGCAGCTGCC AACCCAGAGA ATTCCAGAGG
 351  AAAAGGTCGG AGAGGCCAGA GGGGCAAAAA CCGGGGTTGT GTCTTAACTG
 401  CAATACATTT AAATGTCACT GACTTGGGTC TGGGCTATGA AACCAAGGAG
 451  GAACTGATTT TTAGGTACTG CAGCGGCTCT TGCGATGCAG CTGAGACAAC
 501  GTACGACAAA ATATTGAAAA ACTTATCCAG AAATAGAAGG CTGGTGAGTG
 551  ACAAAGTAGG GCAGGCATGT TGCAGACCCA TCGCCTTTGA TGATGACCTG
 601  TCGTTTTTAG ATGATAACCT GGTTACCAT ATTCTAAGAA AGCATTCCGC
 651  TAAAAGGTGT GGATGTATCT GACTGGTGCG CCGTCTTTCC CGACGTTAAA
 701  GGGATGAAAC CACAAGACTT ACCTTCGCTC GGAAGTAAAA CGACAAACAC
 751  ACACAGTTTT GCCCGTTTTC ATGAGAAATG GGACGTCTGC GCACGAAACG
 801  CGCCGTCGCT TGAGGAGGAC TTGTACAAAC ACGATCTATG CAGGTTTCCC
 851  CAACTGACAC AAACCGTGCA ACTTGAAACT CCGCCTGGTC TTTCCAGGTC
 901  TAGAGGGGTA ACATTTGTA CTGTGTTTGA CTCCACGCTC GATCCACTAG
 951  CGAGTGTTAG TAGCGGTACT GCTGTCTCGT AGCGGAGCAT GTTGGCCGTG
1001  GGAACACCTC CTTGGTAACA AGGACCCACG GGGCCGAAAG CCATGTCCTA
1051  ACGGACCCAA CATGTGTGCA ACCCCAGCAC GGCAGCTTTA CTGTGAAACC
1101  CACTTCAAGG TGACATTGAT ACTGGTACTC AAACACTGGT GACAGGCTAA
1151  GGATGCCCTT CAGGTACCCC GAGGTAACAA GCGACACTCG GGATCTGAGA
1201  AGGGGACTGG GACTTCTTTA AAGTGCCCAG TTTAAAAAGC TTCTACGCCT
1251  GAATAGGTGA CCGGAGGCCG GCACCTTTCC TTTTATAACC ACTGAACACA
1301  TGGAAGACGC CAAAAACATA AAGAAAGGCC CGGCGCCATT CTATCCTCTA
1351  GAGGATGGAA CCGCTGGAGA GCAACTGCAT AAGGCTATGA AGAGATACGC
1401  CCTGGTTCCT GGAACAATTG CTTTTACAGA TGCACATATC GAGGTGAACA
1451  TCACGTACGC GGAATACTTC GAAATGTCCG TTCGGTTGGC AGAAGCTATG
1501  AAACGATATG GGCTGAATAC AAATCACAGA ATCGTCGTAT GCAGTGAAAA
1551  CTCTCTTCAA TTCTTTATGC CGGTGTTGGG CGCGTTATTT ATCGGAGTTG
1601  CAGTTGCGCC CGCGAACGAC ATTTATAATG AACGTGAATT GCTCAACAGT
1651  ATGAACATTT CGCAGCCTAC CGTAGTGTTT GTTTCCAAAA AGGGGTTGCA
1701  AAAAATTTTG AACGTGCAAA AAAATTACC AATAATCCAG AAAATTATTA
1751  TCATGGATTC TAAAACGGAT TACCAGGGAT TTCAGTCGAT GTACACGTTC
1801  GTCACATCTC ATCTACCTCC CGGTTTTAAT GAATACGATT TTGTACCAGA
1851  GTCCTTTGAT CGTGACAAAA CAATTGCACT GATAATGAAT TCCTCTGGAT
1901  CTACTGGGTT ACCTAAGGGT GTGGCCCTTC CGCATAGAAC TGCCTGCGTC
1951  AGATTCTCGC ATGCCAGAGA TCCTATTTTT GGCAATCAAA TCATTCCGGA
2001  TACTGCGATT TTAAGTGTTG TTCCATTCCA TCACGGTTTT GGAATGTTTA
2051  CTACACTCGG ATATTTGATA TGTGGATTTC GAGTCGTCTT AATGTATAGA
2101  TTTGAAGAAG AGCTGTTTTT ACGATCCCTT CAGGATTACA AAATTCAAAG
2151  TGCGTTGCTA GTACCAACCC TATTTTCATT CTTCGCCAAA AGCACTCTGA
2201  TTGACAAATA CGATTTATCT AATTTACACG AAATTGCTTC TGGGGGCGCA
2251  CCTCTTTCGA AAGAAGTCGG GGAAGCGGTT GCAAACGCT TCCATCTTCC
2301  AGGGATACGA CAAGGATATG GGCTCACTGA GACTACATCA GCTATTCTGA
2351  TTACACCCGA GGGGGATGAT AAACCGGGCG CGGTCGGTAA AGTTGTTCCA
2401  TTTTTTGAAG CGAAGGTTGT GGATCTGGAT ACCGGGAAAA CGCTGGGCGT
2451  TAATCAGAGA GGCGAATTAT GTGTCAGAGG ACCTATGATT ATGTCCGGTT
2501  ATGTAAACAA TCCGGAAGCG ACCAACGCCT TGATTGACAA GGATGGATGG
2551  CTACATTCTG GAGACATAGC TTACTGGGAC GAAGACGAAC ACTTCTTCAT
2601  AGTTGACCGC TTGAAGTCTT TAATTAAATA CAAAGGATAT CAGGTGGCCC
2651  CCGCTGAATT GGAATCGATA TTGTTACAAC ACCCCAACAT CTTCGACGCG
2701  GGCGTGGCAG TCTTCCCGA CGATGACGCC GGTGAACTTC CCGCCGCCGT
2751  TGTTGTTTTG GAGCACGGAA AGACGATGAC GGAAAAAGAG ATCGTGGATT
2801  ACGTCGCCAG TCAAGTAACA ACCGCGAAAA AGTTGCGCGG AGGAGTTGTG
2851  TTTGTGGACG AAGTACCGAA AGGTCTTACC GGAAAACTCG ACGCAAGAAA
2901  AATCAGAGAG ATCCTCATAA AGGCCAAGAA GGGCGGAAAG TCCAAATTGT
2951  AAAATGTAAC TGTATTCAGC GATGACGAAA TTCTTAGCTA TTGTAATGAC
3001  TCTAGAGGAT CTTTGTGAAG GAACCTTACT TCTGTGGTGT GACATAATTG
3051  GACAAACTAC CTACAGAGAT TTAAAGCTCT AAGGTAAATA TAAAATTTTT
3101  AAGTGTATAA TGTGTTAAAC TACTGATTCT AATTGTTTGT GTATTTTAGA
3151  TTCCAACCTA TGGAACTGAT GAATGGGAGC AGTGGTGGAA TGCCTTTAAT
3201  GAGGAAAACC TGTTTTGCTC AGAAGAAATG CCATCTAGTG ATGATGAGGC
```

Fig. 19

```
3251  TACTGCTGAC TCTCAACATT CTACTCCTCC AAAAAAGAAG AGAAAGGTAG
3301  AAGACCCCAA GGACTTTCCT TCAGAATTGC TAAGTTTTTT GAGTCATGCT
3351  GTGTTTAGTA ATAGAACTCT TGCTTGCTTT GCTATTTACA CCACAAAGGA
3401  AAAAGCTGCA CTGCTATACA AGAAAATTAT GGAAAAATAT TCTGTAACCT
3451  TTATAAGTAG GCATAACAGT TATAATCATA ACATACTGTT TTTTCTTACT
3501  CCACACAGGC ATAGAGTGTC TGCTATTAAT AACTATGCTC AAAAATTGTG
3551  TACCTTTAGC TTTTTAATTT GTAAAGGGGT TAATAAGGAA TATTTGATGT
3601  ATAGTGCCTT GACTAGAGAT CATAATCAGC CATACCACAT TTGTAGAGGT
3651  TTTACTTGCT TTAAAAAACC TCCCACACCT CCCCCTGAAC CTGAAACATA
3701  AAATGAATGC AATTGTTGTT GTTAACTTGT TTATTGCAGC TTATAATGGT
3751  TACAAATAAA GCAATAGCAT CACAAATTTC ACAAATAAAG CATTTTTTC
3801  ACTGCATTCT AGTTGTGGTT TGTCCAAACT CATCAATGTA TCTTATCATG
3851  TCTGGATCCC CGGGTCCCTA TAGTGAGTCG TATTAGCTTG GCGTAATCAT
3901  GGTCATAGCT GTTTCCTGTG TGAAATTGTT ATCCGCTCAC AATTCCACAC
3951  AACATACGAG CCGGAAGCAT AAAGTGTAAA GCCTGGGGTG CCTAATGAGT
4001  GAGCTAACTC ACATTAATTG CGTTGCGCTC ACTGCCCGCT TTCCAGTCGG
4051  GAAACCTGTC GTGCCAGCTG CATTAATGAA TCGGCCAACG CGCGGGGAGA
4101  GGCGGTTTGC GTATTGGGCG CTCTTCCGCT TCCTCGCTCA CTGACTCGCT
4151  GCGCTCGGTC GTTCGGCTGC GGCGAGCGGT ATCAGCTCAC TCAAAGGCGG
4201  TAATACGGTT ATCCACAGAA TCAGGGGATA ACGCAGGAAA GAACATGTGA
4251  GCAAAAGGCC AGCAAAAGGC CAGGAACCGT AAAAAGGCCG CGTTGCTGGC
4301  GTTTTTCCAT AGGCTCCGCC CCCCTGACGA GCATCACAAA AATCGACGCT
4351  CAAGTCAGAG GTGGCGAAAC CCGACAGGAC TATAAAGATA CCAGGCGTTT
4401  CCCCCTGGAA GCTCCCTCGT GCGCTCTCCT GTTCCGACCC TGCCGCTTAC
4451  CGGATACCTG TCCGCCTTTC TCCCTTCGGG AAGCGTGGCG CTTTCTCAAT
4501  GCTCACGCTG TAGGTATCTC AGTTCGGTGT AGGTCGTTCG CTCCAAGCTG
4551  GGCTGTGTGC ACGAACCCCC CGTTCAGCCC GACCGCTGCG CCTTATCCGG
4601  TAACTATCGT CTTGAGTCCA ACCCGGTAAG ACACGACTTA TCGCCACTGG
4651  CAGCAGCCAC TGGTAACAGG ATTAGCAGAG CGAGGTATGT AGGCGGTGCT
4701  ACAGAGTTCT TGAAGTGGTG GCCTAACTAC GGCTACACTA GAAGGACAGT
4751  ATTTGGTATC TGCGCTCTGC TGAAGCCAGT TACCTTCGGA AAAAGAGTTG
4801  GTAGCTCTTG ATCCGGCAAA CAAACCACCG CTGGTAGCGG TGGTTTTTTT
4851  GTTTGCAAGC AGCAGATTAC GCGCAGAAAA AAAGGATCTC AAGAAGATCC
4901  TTTGATCTTT TCTACGGGGT CTGACGCTCA GTGGAACGAA AACTCACGTT
4951  AAGGGATTTT GGTCATGAGA TTATCAAAAA GGATCTTCAC CTAGATCCTT
5001  TTAAATTAAA AATGAAGTTT TAAATCAATC TAAAGTATAT ATGAGTAAAC
5051  TTGGTCTGAC AGTTACCAAT GCTTAATCAG TGAGGCACCT ATCTCAGCGA
5101  TCTGTCTATT TCGTTCATCC ATAGTTGCCT GACTCCCCGT CGTGTAGATA
5151  ACTACGATAC GGGAGGGCTT ACCATCTGGC CCCAGTGCTG CAATGATACC
5201  GCGAGACCCA CGCTCACCGG CTCCAGATTT ATCAGCAATA AACCAGCCAG
5251  CCGGAAGGGC CGAGCGCAGA AGTGGTCCTG CAACTTTATC CGCCTCCATC
5301  CAGTCTATTA ATTGTTGCCG GGAAGCTAGA GTAAGTAGTT CGCCAGTTAA
5351  TAGTTTGCGC AACGTTGTTG CCATTGCTAC AGGCATCGTG GTGTCACGCT
5401  CGTCGTTTGG TATGGCTTCA TTCAGCTCCG GTTCCCAACG ATCAAGGCGA
5451  GTTACATGAT CCCCCATGTT GTGCAAAAAA GCGGTTAGCT CCTTCGGTCC
5501  TCCGATCGTT GTCAGAAGTA AGTTGGCCGC AGTGTTATCA CTCATGGTTA
5551  TGGCAGCACT GCATAATTCT CTTACTGTCA TGCCATCCGT AAGATGCTTT
5601  TCTGTGACTG GTGAGTACTC AACCAAGTCA TTCTGAGAAT AGTGTATGCG
5651  GCGACCGAGT TGCTCTTGCC CGGCGTCAAT ACGGGATAAT ACCGCGCCAC
5701  ATAGCAGAAC TTTAAAAGTG CTCATCATTG GAAAACGTTC TTCGGGGCGA
5751  AAACTCTCAA GGATCTTACC GCTGTTGAGA TCCAGTTCGA TGTAACCCAC
5801  TCGTGCACCC AACTGATCTT CAGCATCTTT TACTTTCACC AGCGTTTCTG
5851  GGTGAGCAAA AACAGGAAGG CAAAATGCCG CAAAAAAGGG AATAAGGGCG
5901  ACACGGAAAT GTTGAATACT CATACTCTTC CTTTTTCAAT ATTATTGAAG
5951  CATTTATCAG GGTTATTGTC TCATGAGCGG ATACATATTT GAATGTATTT
6001  AGAAAAATAA ACAAATAGGG GTTCCGCGCA CATTTCCCCG AAAAGTGCCA
6051  CCTGACGTCT AAGAAACCAT TATTATCATG ACATTAACCT ATAAAAATAG
6101  GCGTATCACG AGGCCCTTTC GTCTCGCGCG TTTCGGTGAT GACGGTGAAA
6151  ACCTCTGACA CATGCAGCTC CCGGAGACGG TCACAGCTTG TCTGTAAGCG
6201  GATGCCGGGA GCAGACAAGC CCGTCAGGGC GCGTCAGCGG GTGTTGGCGG
6251  GTGTCGGGGC TGGCTTAACT ATGCGGCATC AGAGCAGATT GTACTGAGAG
6301  TGCACCATAT GCGGTGTGAA ATACCGCACA GATGCGTAAG GAGAAAATAC
6351  CGCATCAGGC GCCATTCGCC ATTCAGGCTG CGCAACTGTT GGGAAGGGCG
6401  ATCGGTGCGG GCCTCTTCGC TATTACGCCA GCTGGCGAAA GGGGGATGTG
6451  CTGCAAGGCG ATTAAGTTGG GTAACGCCAG GGTTTTCCCA GTCACGACGT
6501  TGTAAAACGA CGGCCAGTGA ATTTCGACCT GCAGTCGACA GAAGCCTTAC
6551  GTGACAGCTG GCGAAGAACC ATGGCCAGCT GGTGACAAGC CAAAACAGCT
```

Fig. 19

```
6601   CTGGCTCGCA AAACATGTTC CCTTGGCTGC TTTCCACTTC CCCTTGTGCT
6651   TTGTTTACTT GTGTCAGCTG GTTGGCTCCC TAGGTATGAG CTCATGCTTG
6701   GCTGGCAGCC ATCCAGTTTT AGCCAGCTCT GCTTTGTTTA CTTGTGTCAG
6751   CTGGTTGGCT CCCTAGGTAT GAGCTCATGC TTGGCTGGCA GCCATCCAGT
6801   TTTAGCCAGC TCCTCCCTAC CTTCCCTTTT TTTTATATAT ACAGGAGGCC
6851   GAGGCCGCCT CCGCCTCCAA GCTTACTCAG AAGTAGTAAG GGCGTGGAGG
6901   CTTTTTAGGA GGCCAGGGAA ATTCCCTTGT TTTTCCCTTT TTTGCAGTAA
6951   TTTTTTGCTG CAAAAAGCTA A
```

Fig. 19

pD12JCVPshort-hCNTF

Length: 7558

```
   1  GCTAGCGATT TAGGTGACAC TATAGAATCt cgacnnGTCA CCCCTAGAGT

  51  CGAGCTGTGA CGGTCCTTAC AATGAAATGC ANCTGGGTTA TCTTCTTCCT

 101  GATGGCAGGG GTTACAGGTA AGGGGCTCCC AAGTCCCAAA CTTGAGGGTC

 151  CATAAACTCT GTGACAGTGG CAATCACTTT GCCTTTCTTT CTACAGGGGT

 201  GAATTCGGCT TTCACAGAGC ATTCACCGCT GACCCCTCAC CGTCGGGACC

 251  TCTGTAGCCG CTCTATCTGG CTAGCAAGGA AGATTCGTTC AGACCTTGAC

 301  TGCTCTTACG GAATCCTATG TAAGTTGCCT ATTTTGCTGT TATCTGTTTT

 351  CCCTTCATCT TTTTTGATCC AGCAACTTAC CATCACGCAT CAGCTCCATT

 401  ACCAATTGTG AAAGCTCTAA TCATATAGTC ATTCATATAG GTTATTTGAC

 451  ATGGCCCTT CCCTTGAGGA AACCCATGTG ACTTTATTTT CTTCCTCTGG

 501  GCTGTTTAGG AGATGAAGTT ACTTGAATGA GAAAATATAT ATGGAGTTCT

 551  AGAAAGGATT GGTTTATATG TCTTGGAGGC TATTTCAAAA TTTATTTGGC

 601  CATATATTCT GAATACTACC TAGAACAGAT TAGCCATGGG CCCTNTGGGT

 651  TNTTCATAAG CCATTGTTCT GAANTTTTTT AGCTTTGTAA ATGAAAGGTT

 701  TATGGGATAG GAAGAGTNCT ATGAACGTGG GAGGAATTTG TAAATCCTAC

 751  CAATTTNTNC TATATAGCAT TAGCCCCCAC CTTTTANTAT TCTGCATCAA

 801  AAGTAAGATT GTGTCTAAAG AGAAAGGTNA GCTATCAAAA GGACTCCTAT

 851  AANATTCNTT GGAAACTTNT GGAANTGTCA AATTTNTTTG AGCTAATTNT

 901  TGGAGTTCCA AANTTTGTCT TNTNACAGTN AAGGGGGANC CCCATTCANA

 951  TTTNCCCCCC TNNNGANAAT GCTTGGGGGA AAAAACCTNC CAACCCCNTT

1001  GTGGGANGAA GTTTTTTTAA NNTTTTAAGG CTNGNNGAAA CNGGNTTTTA

1051  ATTTTTTGGG NCNANCGCCT NTCCCCGGTA CCAGGAAAAT CAGGACCTNT

1101  TTTTGGGGNN GNGCNCCNAC NGGGGGGNAA AANGGGAAAT TTCNTCANAA

1151  AAAATCTTTT CCGnnnnnng tgaagcatca gggcctgaac aagaacatca

1201  acctggactc tgcggatggg atgccagtgg caagcactga tcagtggagt

1251  gagctgaccg aggcagagcg actccaagag aaccttcaag cttatcgtac
```

Fig. 20

```
1301  cttccatgtt ttgttggcca ggctcttaga agaccagcag gtgcatttta

1351  ccccaaccga aggtgacttc catcaagcta tacataccct tcttctccaa

1401  gtcgctgcct ttgcatacca gatagaggag ttaatgatac tcctggaata

1451  caagatcccc cgcaatgagg ctgatgggat gcctattaat gttggagatg

1501  gtggtctctt tgagaagaag ctgtggggcc taaaggtgct gcaggagctt

1551  tcacagtgga cagtaaggtc catccatgac cttcgtttca tttcttctca

1601  tcagactggg atcccagcac gtgggagcca ttatattgct aacaacaaga

1651  aaatgtagnn nnngcggccT GCGCCGTCTT TCCCGACGTT AAAGGGATGA

1701  AACCACAAGA CTTACCTTCG CTCGGAAGTA AAACGACAAA CACACACAGT

1751  TTTGCCCGTT TTCATGAGAA ATGGGACGTC TGCGCACGAA ACGCGCCGTC

1801  GCTTGAGGAG GACTTGTACA AACACGATCT ATGCAGGTTT CCCCAACTGA

1851  CACAAACCGT GCAACTTGAA ACTCCGCCTG GTCTTTCCAG GTCTAGAGGG

1901  GTAACATTTT GTACTGTGTT TGACTCCACG CTCGATCCAC TAGCGAGTGT

1951  TAGTAGCGGT ACTGCTGTCT CGTAGCGGAG CATGTTGGCC GTGGGAACAC

2001  CTCCTTGGTA ACAAGGACCC ACGGGGCCGA AAGCCATGTC CTAACGGACC

2051  CAACATGTGT GCAACCCCAG CACGGCAGCT TTACTGTGAA ACCCACTTCA

2101  AGGTGACATT GATACTGGTA CTCAAACACT GGTGACAGGC TAAGGATGCC

2151  CTTCAGGTAC CCCGAGGTAA CAAGCGACAC TCGGGATCTG AGAAGGGGAC

2201  TGGGACTTCT TTAAAGTGCC CAGTTTAAAA AGCTTCTACG CCTGAATAGG

2251  TGACCGGAGG CCGGCACCTT TCCTTTTATA ACCACTGAAC ACATGGAAGA

2301  CGCCAAAAAC ATAAAGAAAG GCCCGGCGCC ATTCTATCCT CTAGAGGATG

2351  GAACCGCTGG AGAGCAACTG CATAAGGCTA TGAAGAGATA CGCCCTGGTT

2401  CCTGGAACAA TTGCTTTTAC AGATGCACAT ATCGAGGTGA ACATCACGTA

2451  CGCGGAATAC TTCGAAATGT CCGTTCGGTT GGCAGAAGCT ATGAAACGAT

2501  ATGGGCTGAA TACAAATCAC AGAATCGTCG TATGCAGTGA AAACTCTCTT

2551  CAATTCTTTA TGCCGGTGTT GGGCGCGTTA TTTATCGGAG TTGCAGTTGC

2601  GCCCGCGAAC GACATTTATA ATGAACGTGA ATTGCTCAAC AGTATGAACA

2651  TTTCGCAGCC TACCGTAGTG TTTGTTTCCA AAAAGGGGTT GCAAAAAATT
```

Fig. 20

```
2701   TTGAACGTGC AAAAAAAATT ACCAATAATC CAGAAAATTA TTATCATGGA

2751   TTCTAAAACG GATTACCAGG GATTTCAGTC GATGTACACG TTCGTCACAT

2801   CTCATCTACC TCCCGGTTTT AATGAATACG ATTTTGTACC AGAGTCCTTT

2851   GATCGTGACA AAACAATTGC ACTGATAATG AATTCCTCTG GATCTACTGG

2901   GTTACCTAAG GGTGTGGCCC TTCCGCATAG AACTGCCTGC GTCAGATTCT

2951   CGCATGCCAG AGATCCTATT TTTGGCAATC AAATCATTCC GGATACTGCG

3001   ATTTTAAGTG TTGTTCCATT CCATCACGGT TTTGGAATGT TTACTACACT

3051   CGGATATTTG ATATGTGGAT TTCGAGTCGT CTTAATGTAT AGATTTGAAG

3101   AAGAGCTGTT TTTACGATCC CTTCAGGATT ACAAAATTCA AAGTGCGTTG

3151   CTAGTACCAA CCCTATTTTC ATTCTTCGCC AAAAGCACTC TGATTGACAA

3201   ATACGATTTA TCTAATTTAC ACGAAATTGC TTCTGGGGGC GCACCTCTTT

3251   CGAAAGAAGT CGGGGAAGCG GTTGCAAAAC GCTTCCATCT TCCAGGGATA

3301   CGACAAGGAT ATGGGCTCAC TGAGACTACA TCAGCTATTC TGATTACACC

3351   CGAGGGGGAT GATAAACCGG GCGCGGTCGG TAAAGTTGTT CCATTTTTTG

3401   AAGCGAAGGT TGTGGATCTG GATACCGGGA AAACGCTGGG CGTTAATCAG

3451   AGAGGCGAAT TATGTGTCAG AGGACCTATG ATTATGTCCG GTTATGTAAA

3501   CAATCCGGAA GCGACCAACG CCTTGATTGA CAAGGATGGA TGGCTACATT

3551   CTGGAGACAT AGCTTACTGG GACGAAGACG AACACTTCTT CATAGTTGAC

3601   CGCTTGAAGT CTTTAATTAA ATACAAAGGA TATCAGGTGG CCCCCGCTGA

3651   ATTGGAATCG ATATTGTTAC AACACCCCAA CATCTTCGAC GCGGGCGTGG

3701   CAGGTCTTCC CGACGATGAC GCCGGTGAAC TTCCCGCCGC CGTTGTTGTT

3751   TTGGAGCACG GAAAGACGAT GACGGAAAAA GAGATCGTGG ATTACGTCGC

3801   CAGTCAAGTA ACAACCGCGA AAAAGTTGCG CGGAGGAGTT GTGTTTGTGG

3851   ACGAAGTACC GAAAGGTCTT ACCGGAAAAC TCGACGCAAG AAAAATCAGA

3901   GAGATCCTCA TAAAGGCCAA GAAGGGCGGA AAGTCCAAAT TGTAAAATGT

3951   AACTGTATTC AGCGATGACG AAATTCTTAG CTATTGTAAT GACTCTAGAG

4001   GATCTTTGTG AAGGAACCTT ACTTCTGTGG TGTGACATAA TTGGACAAAC

4051   TACCTACAGA GATTTAAAGC TCTAAGGTAA ATATAAAATT TTTAAGTGTA
```

Fig. 20

4101 TAATGTGTTA AACTACTGAT TCTAATTGTT TGTGTATTTT AGATTCCAAC

4151 CTATGGAACT GATGAATGGG AGCAGTGGTG GAATGCCTTT AATGAGGAAA

4201 ACCTGTTTTG CTCAGAAGAA ATGCCATCTA GTGATGATGA GGCTACTGCT

4251 GACTCTCAAC ATTCTACTCC TCCAAAAAAG AAGAGAAAGG TAGAAGACCC

4301 CAAGGACTTT CCTTCAGAAT TGCTAAGTTT TTTGAGTCAT GCTGTGTTTA

4351 GTAATAGAAC TCTTGCTTGC TTTGCTATTT ACACCACAAA GGAAAAAGCT

4401 GCACTGCTAT ACAAGAAAAT TATGGAAAAA TATTCTGTAA CCTTTATAAG

4451 TAGGCATAAC AGTTATAATC ATAACATACT GTTTTTTCTT ACTCCACACA

4501 GGCATAGAGT GTCTGCTATT AATAACTATG CTCAAAAATT GTGTACCTTT

4551 AGCTTTTTAA TTTGTAAAGG GGTTAATAAG GAATATTTGA TGTATAGTGC

4601 CTTGACTAGA GATCATAATC AGCCATACCA CATTTGTAGA GGTTTTACTT

4651 GCTTTAAAAA ACCTCCCACA CCTCCCCCTG AACCTGAAAC ATAAAATGAA

4701 TGCAATTGTT GTTGTTAACT TGTTTATTGC AGCTTATAAT GGTTACAAAT

4751 AAAGCAATAG CATCACAAAT TTCACAAATA AAGCATTTTT TTCACTGCAT

4801 TCTAGTTGTG GTTTGTCCAA ACTCATCAAT GTATCTTATC ATGTCTGGAT

4851 CCCCGGGTCC CTATAGTGAG TCGTATTAGC TTGGCGTAAT CATGGTCATA

4901 GCTGTTTCCT GTGTGAAATT GTTATCCGCT CACAATTCCA CACAACATAC

4951 GAGCCGGAAG CATAAAGTGT AAAGCCTGGG GTGCCTAATG AGTGAGCTAA

5001 CTCACATTAA TTGCGTTGCG CTCACTGCCC GCTTTCCAGT CGGGAAACCT

5051 GTCGTGCCAG CTGCATTAAT GAATCGGCCA ACGCGCGGGG AGAGGCGGTT

5101 TGCGTATTGG GCGCTCTTCC GCTTCCTCGC TCACTGACTC GCTGCGCTCG

5151 GTCGTTCGGC TGCGGCGAGC GGTATCAGCT CACTCAAAGG CGGTAATACG

5201 GTTATCCACA GAATCAGGGG ATAACGCAGG AAAGAACATG TGAGCAAAAG

5251 GCCAGCAAAA GGCCAGGAAC CGTAAAAAGG CCGCGTTGCT GGCGTTTTTC

5301 CATAGGCTCC GCCCCCCTGA CGAGCATCAC AAAAATCGAC GCTCAAGTCA

5351 GAGGTGGCGA AACCCGACAG GACTATAAAG ATACCAGGCG TTTCCCCCTG

5401 GAAGCTCCCT CGTGCGCTCT CCTGTTCCGA CCCTGCCGCT TACCGGATAC

5451 CTGTCCGCCT TTCTCCCTTC GGGAAGCGTG GCGCTTTCTC AATGCTCACG

Fig. 20

```
5501   CTGTAGGTAT  CTCAGTTCGG  TGTAGGTCGT  TCGCTCCAAG  CTGGGCTGTG

5551   TGCACGAACC  CCCCGTTCAG  CCCGACCGCT  GCGCCTTATC  CGGTAACTAT

5601   CGTCTTGAGT  CCAACCCGGT  AAGACACGAC  TTATCGCCAC  TGGCAGCAGC

5651   CACTGGTAAC  AGGATTAGCA  GAGCGAGGTA  TGTAGGCGGT  GCTACAGAGT

5701   TCTTGAAGTG  GTGGCCTAAC  TACGGCTACA  CTAGAAGGAC  AGTATTTGGT

5751   ATCTGCGCTC  TGCTGAAGCC  AGTTACCTTC  GGAAAAAGAG  TTGGTAGCTC

5801   TTGATCCGGC  AAACAAACCA  CCGCTGGTAG  CGGTGGTTTT  TTTGTTTGCA

5851   AGCAGCAGAT  TACGCGCAGA  AAAAAGGAT  CTCAAGAAGA  TCCTTTGATC

5901   TTTTCTACGG  GGTCTGACGC  TCAGTGGAAC  GAAAACTCAC  GTTAAGGGAT

5951   TTTGGTCATG  AGATTATCAA  AAAGGATCTT  CACCTAGATC  CTTTTAAATT

6001   AAAAATGAAG  TTTTAAATCA  ATCTAAAGTA  TATATGAGTA  AACTTGGTCT

6051   GACAGTTACC  AATGCTTAAT  CAGTGAGGCA  CCTATCTCAG  CGATCTGTCT

6101   ATTTCGTTCA  TCCATAGTTG  CCTGACTCCC  CGTCGTGTAG  ATAACTACGA

6151   TACGGGAGGG  CTTACCATCT  GGCCCCAGTG  CTGCAATGAT  ACCGCGAGAC

6201   CCACGCTCAC  CGGCTCCAGA  TTTATCAGCA  ATAAACCAGC  CAGCCGGAAG

6251   GGCCGAGCGC  AGAAGTGGTC  CTGCAACTTT  ATCCGCCTCC  ATCCAGTCTA

6301   TTAATTGTTG  CCGGGAAGCT  AGAGTAAGTA  GTTCGCCAGT  TAATAGTTTG

6351   CGCAACGTTG  TTGCCATTGC  TACAGGCATC  GTGGTGTCAC  GCTCGTCGTT

6401   TGGTATGGCT  TCATTCAGCT  CCGGTTCCCA  ACGATCAAGG  CGAGTTACAT

6451   GATCCCCCAT  GTTGTGCAAA  AAAGCGGTTA  GCTCCTTCGG  TCCTCCGATC

6501   GTTGTCAGAA  GTAAGTTGGC  CGCAGTGTTA  TCACTCATGG  TTATGGCAGC

6551   ACTGCATAAT  TCTCTTACTG  TCATGCCATC  CGTAAGATGC  TTTTCTGTGA

6601   CTGGTGAGTA  CTCAACCAAG  TCATTCTGAG  AATAGTGTAT  GCGGCGACCG

6651   AGTTGCTCTT  GCCCGGCGTC  AATACGGGAT  AATACCGCGC  CACATAGCAG

6701   AACTTTAAAA  GTGCTCATCA  TTGGAAAACG  TTCTTCGGGG  CGAAAACTCT

6751   CAAGGATCTT  ACCGCTGTTG  AGATCCAGTT  CGATGTAACC  CACTCGTGCA

6801   CCCAACTGAT  CTTCAGCATC  TTTTACTTTC  ACCAGCGTTT  CTGGGTGAGC

6851   AAAAACAGGA  AGGCAAAATG  CCGCAAAAA  GGGAATAAGG  GCGACACGGA
```

Fig. 20

```
6901   AATGTTGAAT ACTCATACTC TTCCTTTTTC AATATTATTG AAGCATTTAT

6951   CAGGGTTATT GTCTCATGAG CGGATACATA TTTGAATGTA TTTAGAAAAA

7001   TAAACAAATA GGGGTTCCGC GCACATTTCC CCGAAAAGTG CCACCTGACG

7051   TCTAAGAAAC CATTATTATC ATGACATTAA CCTATAAAAA TAGGCGTATC

7101   ACGAGGCCCT TTCGTCTCGC GCGTTTCGGT GATGACGGTG AAAACCTCTG

7151   ACACATGCAG CTCCCGGAGA CGGTCACAGC TTGTCTGTAA GCGGATGCCG

7201   GGAGCAGACA AGCCCGTCAG GGCGCGTCAG CGGGTGTTGG CGGGTGTCGG

7251   GGCTGGCTTA ACTATGCGGC ATCAGAGCAG ATTGTACTGA GAGTGCACCA

7301   TATGCGGTGT GAAATACCGC ACAGATGCGT AAGGAGAAAA TACCGCATCA

7351   GGCGCCATTC GCCATTCAGG CTGCGCAACT GTTGGGAAGG GCGATCGGTG

7401   CGGGCCTCTT CGCTATTACG CCAGCTGGCG AAAGGGGGAT GTGCTGCAAG

7451   GCGATTAAGT TGGGTAACGC CAGGGTTTTC CCAGTCACGA CGTTGTAAAA

7501   CGACGGCCAG TGAATTTCGA CCTGCAGtcg actttttta tatatacagg

7551   aggccgag
```

Fig. 20

JCVPshort-hgdnf Length: 6565 June 8, 1999 16:57 Type: N Check:

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   1  GCTAGCGATT TAGGTGACAC TATAGAATAG ATCCCCATGA AGTTATGGGA
  51  TGTCGTGGCT GTCTGCCTGG TGCTGCTCCA CACCGCGTCC GCCTTCCCGC
 101  TGCCCGCCGG TAAGAGGCCT CCCGAGGCGC CCGCCGAAGA CCGCTCCCTC
 151  GGCCGCCGCC GCGCGCCCTT CGCGCTGAGC AGTGACTCAA ATATGCCAGA
 201  GGATTATCCT GATCAGTTCG ATGATGTCAT GGATTTTATT CAAGCCACCA
 251  TTAAAAGACT GAAAAGGTCA CCAGATAAAC AAATGGCAGT GCTTCCTAGA
 301  AGAGAGCGGA ATCGGCAGGC TGCAGCTGCC AACCCAGAGA ATTCCAGAGG
 351  AAAAGGTCGG AGAGGCCAGA GGGGCAAAAA CCGGGGTTGT GTCTTAACTG
 401  CAATACATTT AAATGTCACT GACTTGGGTC TGGGCTATGA AACCAAGGAG
 451  GAACTGATTT TTAGGTACTG CAGCGGCTCT TGCGATGCAG CTGAGACAAC
 501  GTACGACAAA ATATTGAAAA ACTTATCCAG AAATAGAAGG CTGGTGAGTG
 551  ACAAAGTAGG GCAGGCATGT TGCAGACCCA TCGCCTTTGA TGATGACCTG
 601  TCGTTTTTAG ATGATAACCT GGTTTACCAT ATTCTAAGAA AGCATTCCGC
 651  TAAAAGGTGT GGATGTATCT GACTGGTGCG CCGTCTTTCC CGACGTTAAA
 701  GGGATGAAAC CACAAGACTT ACCTTCGCTC GGAAGTAAAA CGACAAACAC
 751  ACACAGTTTT GCCCGTTTTC ATGAGAAATG GGACGTCTGC GCACGAAACG
 801  CGCCGTCGCT TGAGGAGGAC TTGTACAAAC ACGATCTATG CAGGTTTCCC
 851  CAACTGACAC AAACCGTGCA ACTTGAAACT CCGCCTGGTC TTTCCAGGTC
 901  TAGAGGGTA ACATTTTGTA CTGTGTTTGA CTCCACGCTC GATCCACTAG
 951  CGAGTGTTAG TAGCGGTACT GCTGTCTCGT AGCGGAGCAT GTTGGCCGTG
1001  GGAACACCTC CTTGGTAACA AGGACCCACG GGGCCGAAAG CCATGTCCTA
1051  ACGGACCCAA CATGTGTGCA ACCCCAGCAC GGCAGCTTTA CTGTGAAACC
1101  CACTTCAAGG TGACATTGAT ACTGGTACTC AAACACTGGT GACAGGCTAA
1151  GGATGCCCTT CAGGTACCCC GAGGTAACAA GCGACACTCG GGATCTGAGA
1201  AGGGGACTGG GACTTCTTTA AAGTGCCCAG TTTAAAAAGC TTCTACGCCT
1251  GAATAGGTGA CCGGAGGCCG GCACCTTTCC TTTTATAACC ACTGAACACA
1301  TGGAAGACGC CAAAAACATA AAGAAAGGCC CGGCGCCATT CTATCCTCTA
1351  GAGGATGGAA CCGCTGGAGA GCAACTGCAT AAGGCTATGA AGAGATACGC
1401  CCTGGTTCCT GGAACAATTG CTTTTACAGA TGCACATATC GAGGTGAACA
1451  TCACGTACGC GGAATACTTC GAAATGTCCG TTCGGTTGGC AGAAGCTATG
1501  AAACGATATG GGCTGAATAC AAATCACAGA ATCGTCGTAT GCAGTGAAAA
1551  CTCTCTTCAA TTCTTTATGC CGGTGTTGGG CGCGTTATTT ATCGGAGTTG
1601  CAGTTGCGCC CGCGAACGAC ATTTATAATG AACGTGAATT GCTCAACAGT
1651  ATGAACATTT CGCAGCCTAC CGTAGTGTTT GTTTCCAAAA AGGGGTTGCA
1701  AAAAATTTTG AACGTGCAAA AAAAATTACC AATAATCCAG AAAATTATTA
1751  TCATGGATTC TAAAACGGAT TACCAGGGAT TTCAGTCGAT GTACACGTTC
1801  GTCACATCTC ATCTACCTCC CGGTTTTAAT GAATACGATT TTGTACCAGA
1851  GTCCTTTGAT CGTGACAAAA CAATTGCACT GATAATGAAT TCCTCTGGAT
1901  CTACTGGGTT ACCTAAGGGT GTGGCCCTTC CGCATAGAAC TGCCTGCGTC
1951  AGATTCTCGC ATGCCAGAGA TCCTATTTTT GGCAATCAAA TCATTCCGGA
2001  TACTGCGATT TTAAGTGTTG TTCCATTCCA TCACGGTTTT GGAATGTTTA
2051  CTACACTCGG ATATTTGATA TGTGGATTTC GAGTCGTCTT AATGTATAGA
2101  TTTGAAGAAG AGCTGTTTTT ACGATCCCTT CAGGATTACA AAATTCAAAG
2151  TGCGTTGCTA GTACCAACCC TATTTTCATT CTTCGCCAAA AGCACTCTGA
2201  TTGACAAATA CGATTTATCT AATTTACACG AAATTGCTTC TGGGGGCGCA
2251  CCTCTTTCGA AAGAAGTCGG GGAAGCGGTT GCAAAACGCT TCCATCTTCC
2301  AGGGATACGA CAAGGATATG GGCTCACTGA GACTACATCA GCTATTCTGA
2351  TTACACCCGA GGGGGATGAT AAACCGGGCG CGGTCGGTAA AGTTGTTCCA
2401  TTTTTTGAAG CGAAGGTTGT GGATCTGGAT ACCGGGAAAA CGCTGGGCGT
2451  TAATCAGAGA GGCGAATTAT GTGTCAGAGG ACCTATGATT ATGTCCGGTT
2501  ATGTAAACAA TCCGGAAGCG ACCAACGCCT TGATTGACAA GGATGGATGG
2551  CTACATTCTG GAGACATAGC TTACTGGGAC GAAGACGAAC ACTTCTTCAT
2601  AGTTGACCGC TTGAAGTCTT TAATTAAATA CAAAGGATAT CAGGTGGCCC
2651  CCGCTGAATT GGAATCGATA TTGTTACAAC ACCCCAACAT CTTCGACGCG
2701  GGCGTGGCAG TCTTCCCGA CGATGACGCC GGTGAACTTC CGCCGCCGT
2751  TGTTGTTTTG GAGCACGGAA AGACGATGAC GGAAAAAGAG ATCGTGGATT
2801  ACGTCGCCAG TCAAGTAACA ACCGCGAAAA AGTTGCGCGG AGGAGTTGTG
2851  TTTGTGGACG AAGTACCGAA AGGTCTTACC GGAAAACTCG ACGCAAGAAA
2901  AATCAGAGAG ATCCTCATAA AGGCCAAGAA GGGCGGAAAG TCCAAATTGT
2951  AAAATGTAAC TGTATTCAGC GATGACGAAA TTCTTAGCTA TTGTAATGAC
3001  TCTAGAGGAT CTTTGTGAAG GAACCTTACT TCTGTGGTGT GACATAATTG
3051  GACAAACTAC CTACAGAGAT TTAAAGCTCT AAGGTAAATA TAAAATTTTT
3101  AAGTGTATAA TGTGTTAAAC TACTGATTCT AATTGTTTGT GTATTTTAGA
3151  TTCCAACCTA TGGAACTGAT GAATGGGAGC AGTGGTGGAA TGCCTTTAAT
```

Fig. 21

```
3201  GAGGAAAACC  TGTTTTGCTC  AGAAGAAATG  CCATCTAGTG  ATGATGAGGC
3251  TACTGCTGAC  TCTCAACATT  CTACTCCTCC  AAAAAGAAG   AGAAAGGTAG
3301  AAGACCCCAA  GGACTTTCCT  TCAGAATTGC  TAAGTTTTTT  GAGTCATGCT
3351  GTGTTTAGTA  ATAGAACTCT  TGCTTGCTTT  GCTATTTACA  CCACAAAGGA
3401  AAAAGCTGCA  CTGCTATACA  AGAAAATTAT  GGAAAAATAT  TCTGTAACCT
3451  TTATAAGTAG  GCATAACAGT  TATAATCATA  ACATACTGTT  TTTTCTTACT
3501  CCACACAGGC  ATAGAGTGTC  TGCTATTAAT  AACTATGCTC  AAAAATTGTG
3551  TACCTTTAGC  TTTTTAATTT  GTAAAGGGGT  TAATAAGGAA  TATTTGATGT
3601  ATAGTGCCTT  GACTAGAGAT  CATAATCAGC  CATACCACAT  TTGTAGAGGT
3651  TTTACTTGCT  TTAAAAAACC  TCCCACACCT  CCCCCTGAAC  CTGAAACATA
3701  AAATGAATGC  AATTGTTGTT  GTTAACTTGT  TTATTGCAGC  TTATAATGGT
3751  TACAAATAAA  GCAATAGCAT  CACAAATTTC  ACAAATAAAG  CATTTTTTTC
3801  ACTGCATTCT  AGTTGTGGTT  TGTCCAAACT  CATCAATGTA  TCTTATCATG
3851  TCTGGATCCC  CGGGTCCCTA  TAGTGAGTCG  TATTAGCTTG  GCGTAATCAT
3901  GGTCATAGCT  GTTTCCTGTG  TGAAATTGTT  ATCCGCTCAC  AATTCCACAC
3951  AACATACGAG  CCGGAAGCAT  AAAGTGTAAA  GCCTGGGGTG  CCTAATGAGT
4001  GAGCTAACTC  ACATTAATTG  CGTTGCGCTC  ACTGCCCGCT  TTCCAGTCGG
4051  GAAACCTGTC  GTGCCAGCTG  CATTAATGAA  TCGGCCAACG  CGCGGGGAGA
4101  GGCGGTTTGC  GTATTGGGCG  CTCTTCCGCT  TCCTCGCTCA  CTGACTCGCT
4151  GCGCTCGGTC  GTTCGGCTGC  GGCGAGCGGT  ATCAGCTCAC  TCAAAGGCGG
4201  TAATACGGTT  ATCCACAGAA  TCAGGGGATA  ACGCAGGAAA  GAACATGTGA
4251  GCAAAAGGCC  AGCAAAAGGC  CAGGAACCGT  AAAAAGGCCG  CGTTGCTGGC
4301  GTTTTTCCAT  AGGCTCCGCC  CCCCTGACGA  GCATCACAAA  AATCGACGCT
4351  CAAGTCAGAG  GTGGCGAAAC  CCGACAGGAC  TATAAAGATA  CCAGGCGTTT
4401  CCCCCTGGAA  GCTCCCTCGT  GCGCTCTCCT  GTTCCGACCC  TGCCGCTTAC
4451  CGGATACCTG  TCCGCCTTTC  TCCCTTCGGG  AAGCGTGGCG  CTTTCTCAAT
4501  GCTCACGCTG  TAGGTATCTC  AGTTCGGTGT  AGGTCGTTCG  CTCCAAGCTG
4551  GGCTGTGTGC  ACGAACCCCC  CGTTCAGCCC  GACCGCTGCG  CCTTATCCGG
4601  TAACTATCGT  CTTGAGTCCA  ACCCGGTAAG  ACACGACTTA  TCGCCACTGG
4651  CAGCAGCCAC  TGGTAACAGG  ATTAGCAGAG  CGAGGTATGT  AGGCGGTGCT
4701  ACAGAGTTCT  TGAAGTGGTG  GCCTAACTAC  GGCTACACTA  GAAGGACAGT
4751  ATTTGGTATC  TGCGCTCTGC  TGAAGCCAGT  TACCTTCGGA  AAAAGAGTTG
4801  GTAGCTCTTG  ATCCGGCAAA  CAAACCACCG  CTGGTAGCGG  TGGTTTTTTT
4851  GTTTGCAAGC  AGCAGATTAC  GCGCAGAAAA  AAAGGATCTC  AAGAAGATCC
4901  TTTGATCTTT  TCTACGGGGT  CTGACGCTCA  GTGGAACGAA  AACTCACGTT
4951  AAGGGATTTT  GGTCATGAGA  TTATCAAAAA  GGATCTTCAC  CTAGATCCTT
5001  TTAAATTAAA  AATGAAGTTT  TAAATCAATC  TAAAGTATAT  ATGAGTAAAC
5051  TTGGTCTGAC  AGTTACCAAT  GCTTAATCAG  TGAGGCACCT  ATCTCAGCGA
5101  TCTGTCTATT  TCGTTCATCC  ATAGTTGCCT  GACTCCCCGT  CGTGTAGATA
5151  ACTACGATAC  GGGAGGGCTT  ACCATCTGGC  CCCAGTGCTG  CAATGATACC
5201  GCGAGACCCA  CGCTCACCGG  CTCCAGATTT  ATCAGCAATA  AACCAGCCAG
5251  CCGGAAGGGC  CGAGCGCAGA  AGTGGTCCTG  CAACTTTATC  CGCCTCCATC
5301  CAGTCTATTA  ATTGTTGCCG  GGAAGCTAGA  GTAAGTAGTT  CGCCAGTTAA
5351  TAGTTTGCGC  AACGTTGTTG  CCATTGCTAC  AGGCATCGTG  GTGTCACGCT
5401  CGTCGTTTGG  TATGGCTTCA  TTCAGCTCCG  GTTCCCAACG  ATCAAGGCGA
5451  GTTACATGAT  CCCCCATGTT  GTGCAAAAAA  GCGGTTAGCT  CCTTCGGTCC
5501  TCCGATCGTT  GTCAGAAGTA  AGTTGGCCGC  AGTGTTATCA  CTCATGGTTA
5551  TGGCAGCACT  GCATAATTCT  CTTACTGTCA  TGCCATCCGT  AAGATGCTTT
5601  TCTGTGACTG  GTGAGTACTC  AACCAAGTCA  TTCTGAGAAT  AGTGTATGCG
5651  GCGACCGAGT  TGCTCTTGCC  CGGCGTCAAT  ACGGGATAAT  ACCGCGCCAC
5701  ATAGCAGAAC  TTTAAAAGTG  CTCATCATTG  GAAAACGTTC  TTCGGGGCGA
5751  AAACTCTCAA  GGATCTTACC  GCTGTTGAGA  TCCAGTTCGA  TGTAACCCAC
5801  TCGTGCACCC  AACTGATCTT  CAGCATCTTT  TACTTTCACC  AGCGTTTCTG
5851  GGTGAGCAAA  AACAGGAAGG  CAAAATGCCG  CAAAAAAGGG  AATAAGGGCG
5901  ACACGGAAAT  GTTGAATACT  CATACTCTTC  CTTTTTCAAT  ATTATTGAAG
5951  CATTTATCAG  GGTTATTGTC  TCATGAGCGG  ATACATATTT  GAATGTATTT
6001  AGAAAAATAA  ACAAATAGGG  GTTCCGCGCA  CATTTCCCCG  AAAAGTGCCA
6051  CCTGACGTCT  AAGAAACCAT  TATTATCATG  ACATTAACCT  ATAAAAATAG
6101  GCGTATCACG  AGGCCCTTTC  GTCTCGCGCG  TTTCGGTGAT  GACGGTGAAA
6151  ACCTCTGACA  CATGCAGCTC  CCGGAGACGG  TCACAGCTTG  TCTGTAAGCG
6201  GATGCCGGGA  GCAGACAAGC  CCGTCAGGGC  GCGTCAGCGG  GTGTTGGCGG
6251  GTGTCGGGGC  TGGCTTAACT  ATGCGGCATC  AGAGCAGATT  GTACTGAGAG
6301  TGCACCATAT  GCGGTGTGAA  ATACCGCACA  GATGCGTAAG  GAGAAAATAC
6351  CGCATCAGGC  GCCATTCGCC  ATTCAGGCTG  CGCAACTGTT  GGGAAGGGCG
6401  ATCGGTGCGG  GCCTCTTCGC  TATTACGCCA  GCTGGCGAAA  GGGGGATGTG
6451  CTGCAAGGCG  ATTAAGTTGG  GTAACGCCAG  GGTTTTCCCA  GTCACGACGT
6501  TGTAAAACGA  CGGCCAGTGA  ATTTCGACCT  GCAGtcgact  tttttttatat
```

Fig. 21

6551 atacaggagg ccgag

Fig. 21

pRetroOFF-E6E7   Length: 7840   June 10, 1999 12:21   Type: N   Check: 5234

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   1  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGTTT
  51  ACCACTCCCT ATCAGTGATA GAGAAAAGTG AAAGTCGAGT TTACCACTCC
 101  CTATCAGTGA TAGAGAAAGT GAAAGTCGAG TTTACCACTC CCTATCAGTG
 151  ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG TGATAGAGAA
 201  AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG AAAAGTGAAG
 251  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGCTC
 301  GGTACCCGGG TCGAGTAGGC GTGTACGGTG GGAGGCCTAT ATAAGCAGAG
 351  CTCGTTTAGT GAACCGTCAG ATCGCCTGGA GACGCCATCC ACGCTGTTTT
 401  GACCTCCATA GAAGACACCG GGACCGATCC AGCCTgcggc cgcagatcta
 451  attcaccggt tagtataaaa gcagacattt tatgcaccaa aagagaactg
 501  caatgtttca ggacccacag gagcgaccca gaaagttacc acagttatgc
 551  acagagctgc aaacaactat acatgatata atattagaat gtgtgtactg
 601  caagcaacag ttactgcgac gtgaggtata tgactttgct tttcgggatt
 651  tatgcatagt atatagagat gggaatccat atgctgtatg tgataaatgt
 701  ttaaagtttt attctaaaat tagtgagtat agacattatt gttatagttt
 751  gtatggaaca acattagaac agcaatacaa caaccgttg tgtgatttgt
 801  taattaggtg tattaactgt caaaagccac tgtgtcctga agaaaagcaa
 851  agacatctgg acaaaaagca aagattccat aatataaggg gtcggtggac
 901  cggtcgatgt atgtcttgtt gcagatcatc aagaacacgt agagaaaccc
 951  agctgtaatc atgcatggag atacacctac attgcatgaa tatatgttag
1001  atttgcaacc agagacaact gatctctact gttatgagca attaaatgac
1051  agctcagagg aggaggatga aatagatggt ccagctggac aagcagaacc
1101  ggacagagcc cattacaata ttgtaacctt ttgttgcaag tgtgactcta
1151  cgcttcggtt gtgcgtacaa agcacacacg tagacattcg tactttggaa
1201  gacctgttaa tgggcacact aggaattgtg tgccccatct gttctcagaa
1251  accataatct accatggctg atcctgcagg atccCCCGGG AACAACAACA
1301  ATTGCATTCA TTTTATGTTT CAGGTTCAGG GGGAGGTGTG GGAGGTTTTT
1351  TAAAGCAAGT AAAACCTCTA CAAATGTGGT ATGGCTGATT ATGATCCTGC
1401  AAGCCTCGTC GTCTGGCCGG ACCACGCTAT CTGTGCAAGG TCCCCGGACG
1451  CGCGCTCCAT GAGCAGAGCG TCGCGCCCCC TACCCACCGT ACTCGTCAAT
1501  TCCAAGGGCA TCGGTAAACA GAGCGCCGTA GGGGGCGGAG TCGTGGGGGG
1551  TAAATCCCGG ACCCGGGGAA TCCCCGTCCC CCAACATGTC CAGATCGAAA
1601  TCGTCTAGCG CGTCGGCATG CGCCATCGCC ACGTCCTCGC CGTATAAGTG
1651  GAGCTCGTCC CCCAGGCTGA CATCGGTCGG GGGGCCGTC GACAGTCTGC
1701  GCGTGTGTCC GCGGGGAGAA AGGACAGGCG CGGAGCCGCC AGCCCCGCCT
1751  CTTCGGGGGC GTCGTCGTCC GGGAGATCGA GCAGGCCCTC GATGGTAGAC
1801  CCGTAATTGT TTTTCGTACG CGCGCGGCTG TACGCGGACC CACTTTCACA
1851  TTTAAGTTGT TTTTCTAATC CGCATATGAT CAATTCAAGG CCGAATAAGA
1901  AGGCTGGCTC TGCACCTTGG TGATCAAATA ATTCGATAGC TTGTCGTAAT
1951  AATGGCGGCA TACTATCAGT AGTAGGTGTT TCCCTTTCTT CTTTAGCGAC
2001  TTGATGCTCT TGATCTTCCA ATACGCAACC TAAAGTAAAA TGCCCCACAG
2051  CGCTGAGTGC ATATAATGCA TTCTCTAGTG AAAAACCTTG TTGGCATAAA
2101  AAGGCTAATT GATTTTCGAG AGTTTCATAC TGTTTTTCTG TAGGCCGTGT
2151  ACCTAAATGT ACTTTTGCTC CATCGCGATG ACTTAGTAAA GCACATCTAA
2201  AACTTTTAGC GTTATTACGT AAAAAATCTT GCCAGCTTTC CCCTTCTAAA
2251  GGGCAAAAGT GAGTATGGTG CCTATCTAAC ATCTCAATGG CTAAGGCGTC
2301  GAGCAAAGCC CGCTTATTTT TTACATGCCA ATACAATGTA GGCTGCTCTA
2351  CACCTAGCTT CTGGGCGAGT TTACGGGTTG TTAAACCTTC GATTCCGACC
2401  TCATTAAGCA GCTCTAATGC GCTGTTAATC ACTTTACTTT TATCTAATCT
2451  AGACATGGTG GAAGCTTTTT GCAAAAGCCT AGGCCTCCAA AAAAGCCTCC
2501  TCACTACTTC TGGAATAGCT CAGAGGCCGA GGCGGCCTCG GCCTCTGCAT
2551  AAATAAAAAA AATTAGTCAG CCATGGGGCG GAGAATGGGC GGAACTGGGC
2601  GGAGTTAGGG GCGGGATGGG CGGAGTTAGG GGCGGGACTA TGGTTGCTGA
2651  CTAATTGAGA TGCATGCTTT GCATACTTCT GCCTGCTGGG GAGCCTGGGG
2701  ACTTTCCACA CCTGGTTGCT GACTAATTGA GATGCATGCT TTGCATACTT
2751  CTGCCTGCTG GGGAGCCTGG GGACTTTCCA CACCCTAACT GACACACATT
2801  CCACAGGTCG ACTAGATCGA ATTCTCAATT GTTTTACGCG GCCCGATGCA
2851  TGGGGTCGTG CGCTCCTTTC GGTCGGGCGC TGCGGGTCGT GGGGCGGGCG
2901  TCAGGCACCG GGCTTGCGGG TCATGCACCA GGTCGCGCGG TCCTTCGGGC
2951  ACTCGACGTC GGCGGTGACG GTGAAGCCGA GCCGCTGTCA GAAGGGGAGG
3001  TTGCGGGGCG CGGAGGTCTC CAGGAAGGCG GGCACCCCGG CGCGCTCGGC
3051  CGCCTCCACT CCGGGGAGCA CGACGGCGCT GCCCAGACCC TTGCCCTGGT
3101  GGTCGGGCGA GACGCCGACG GTGGCCAGGA ACCACGCGGG CTCCTTGGGC
3151  CGGTGCGGCG CCAGGAGGCC TTCCATCTGT TGCTGCGCGG CCAGCCGGGA
```

<div style="text-align: right">Fig. 22</div>

```
3201  ACCGCTCAAC  TCGGCCATGC  GCGGGCCGAT  CTCGGCGAAC  ACCGCCCCCG
3251  CTTCGACGCT  CTCCGGCGTG  GTCCAGACCG  CCACCGCGGC  GCCGTCGTCC
3301  GCGACCCACA  CCTTGCCGAT  GTCGAGCCCG  ACGCGCGTGA  GGAAGAGTTC
3351  TTGCAGCTCG  GTGACCCGCT  CGATGTGGCG  GTCCGGATCG  ACGGTGTGGC
3401  GCGTGGCGGG  GTAGTCGGCG  AACGCGGCGG  CGAGGGTGCG  TACGGCCCTG
3451  GGGACGTCGT  CGCGGGTGGC  GAGGCGCACC  GTGGGCTTGT  ACTCGGTCAT
3501  GGTAAGCTGA  TCCGGCCGGC  GCCTAGAGAA  GGAGTGAGGG  CTGGATAAAG
3551  GGAGGATTGA  GGCGGGGTCG  AAAGAGGAGG  TTCAAGGGGG  AGAGACGGCG
3601  CGGATGGAAG  AAGAGGAGGC  GGAGGCTTAG  GGTGTACAAA  GGGCTTGACC
3651  CAGGGAGGGG  GGTCAAAAGC  CAAGGCTTCC  CAGGTCACGA  TGTAGGGGAC
3701  CTGGTCTGGG  TGTCCATGCG  GGCCAGGTGA  AAAGACCTTG  ATCTTAACCT
3751  GGGTGATGAG  GTCTCGGTTA  AAGGTGCCGT  CTCGCGGCCA  TCCGACGTTA
3801  AAGGTTGGCC  ATTCTGCAGA  GCAGAAGGTA  ACCCAACGTC  TCTTCTTGAC
3851  ATCTACCGAC  TGGTTGTGAG  CGAGCCGCTC  GACATCTTTC  CAGTGATCTA
3901  AGGTCAAACT  TAAGGGAGTG  GTAACAGTCT  GGCCCTAATT  TTCAGACAAA
3951  TACAGAAACA  CAGTCAGACA  GAGACAACAC  AGAACGATGC  TGCAGCAGAC
4001  AAGACGCGCG  GCTTCGGTTC  CAAACCGAAA  GCAAAAATTC  AGACGGAGGC
4051  GGGAACTGTT  TTAGGTTCTC  GTCTCCTACC  AGAACCACAT  ATCCTGACGG
4101  GGTCGGATTC  CACATCGACT  CCCTTCCTCA  GGTCGGGCCA  CAAAAACGGC
4151  CCCCAAAGTC  CCTGGGACGT  CTCCCAGGGT  TGCGGCCGGG  TGTTCAGAAC
4201  TCGTCAGTTC  CACCACGGGT  CCGCCAGATA  CAGAGCTAGT  TAGCTAACTA
4251  GTACCGACGC  AGGCGCATAA  AATCAGTCAT  AGACACTAGA  CAATCGGACA
4301  GACACAGATA  AGTTGCTGGC  CAGCTTACCT  CCCGGTGGTG  GGTCGGTGGT
4351  CCCTGGGCAG  GGGTCTCCCG  ATCCCGACG  AGCCCCCAAA  TGAAAGACCC
4401  CCGCTGACGG  GTAGTCAATC  ACTCAGAGGA  GACCCTCCCA  AGGAACAGCG
4451  AGACCACAAG  TCGGATGCAA  CTGCAAGAGG  GTTTATTGGA  TACACGGGTA
4501  CCCGGGCGAC  TCAGTCAATC  GGAGGACTGG  CGCCCCGAGT  GAGGGGTTGT
4551  GGGCTCTTTT  ATTGAGCTCG  GGGAGCAGAA  GCGCGCGAAC  AGAAGCGAGA
4601  AGCGAACTGA  TTGGTTAGTT  CAAATAAGGC  ACAGGGTCAT  TTCAGGTCCT
4651  TGGGGCACCC  TGGAAACATC  TGATGGTTCT  CTAGAAACTG  CTGAGGGCTG
4701  GACCGCATCT  GGGGACCATC  TGTTCTTGGC  CCTGAGCCGG  GGCAGGAACT
4751  GCTTACCACA  GATATCCTGT  TTGGCCCATA  TTCAGCTGTT  CCATCTGTTC
4801  TTGGCCCTGA  GCCGGGGCAG  GAACTGCTTA  CCACAGATAT  CCTGTTTGGC
4851  CCATATTCAG  GCTGCAGGTG  GCACTTTTCG  GGGAAATGTG  CGCGGAACCC
4901  CTATTTGTTT  ATTTTTCTAA  ATACATTCAA  ATATGTATCC  GCTCATGAGA
4951  CAATAACCCT  GATAAATGCT  TCAATAATAT  TGAAAAAGGA  AGAGTATGAG
5001  TATTCAACAT  TTCCGTGTCG  CCCTTATTCC  CTTTTTTGCG  GCATTTTGCC
5051  TTCCTGTTTT  TGCTCACCCA  GAAACGCTGG  TGAAAGTAAA  AGATGCTGAA
5101  GATCAGTTGG  GTGCACGAGT  GGGTTACATC  GAACTGGATC  TCAACAGCGG
5151  TAAGATCCTT  GAGAGTTTTC  GCCCCGAAGA  ACGTTTTCCA  ATGATGAGCA
5201  CTTTTAAAGT  TCTGCTATGT  GGCGCGGTAT  TATCCCGTGT  TGACGCCGGG
5251  CAAGAGCAAC  TCGGTCGCCG  CATACACTAT  TCTCAGAATG  ACTTGGTTGA
5301  GTACTCACCA  GTCACAGAAA  AGCATCTTAC  GGATGGCATG  ACAGTAAGAG
5351  AATTATGCAG  TGCTGCCATA  ACCATGAGTG  ATAACACTGC  GGCCAACTTA
5401  CTTCTGACAA  CGATCGGAGG  ACCGAAGGAG  CTAACCGCTT  TTTTGCACAA
5451  CATGGGGGAT  CATGTAACTC  GCCTTGATCG  TTGGGAACCG  GAGCTGAATG
5501  AAGCCATACC  AAACGACGAG  CGTGACACCA  CGATGCCTGT  AGCAATGGCA
5551  ACAACGTTGC  GCAAACTATT  AACTGGCGAA  CTACTTACTC  TAGCTTCCCG
5601  GCAACAATTA  ATAGACTGGA  TGGAGGCGGA  TAAAGTTGCA  GGACCACTTC
5651  TGCGCTCGGC  CCTTCCGGCT  GGCTGGTTTA  TTGCTGATAA  ATCTGGAGCC
5701  GGTGAGCGTG  GGTCTCGCGG  TATCATTGCA  GCACTGGGGC  CAGATGGTAA
5751  GCCCTCCCGT  ATCGTAGTTA  TCTACACGAC  GGGGAGTCAG  GCAACTATGG
5801  ATGAACGAAA  TAGACAGATC  GCTGAGATAG  GTGCCTCACT  GATTAAGCAT
5851  TGGTAACTGT  CAGACCAAGT  TTACTCATAT  ATACTTTAGA  TTGATTTGCG
5901  GCCGGCCGCA  AACTTCATTT  TTAATTTAAA  AGGATCTAGG  TGAAGATCCT
5951  TTTTGATAAT  CTCATGACCA  AAATCCCTTA  ACGTGAGTTT  TCGTTCCACT
6001  GAGCGTCAGA  CCCCGTAGAA  AAGATCAAAG  GATCTTCTTG  AGATCCTTTT
6051  TTTCTGCGCG  TAATCTGCTG  CTTGCAAACA  AAAAAACCAC  CGCTACCAGC
6101  GGTGGTTTGT  TTGCCGGATC  AAGAGCTACC  AACTCTTTTT  CCGAAGGTAA
6151  CTGGCTTCAG  CAGAGCGCAG  ATACCAAATA  CTGTCCTTCT  AGTGTAGCCG
6201  TAGTTAGGCC  ACCACTTCAA  GAACTCTGTA  GCACCGCCTA  CATACCTCGC
6251  TCTGCTAATC  CTGTTACCAG  TGGCTGCTGC  CAGTGGCGAT  AAGTCGTGTC
6301  TTACCGGGTT  GGACTCAAGA  CGATAGTTAC  CGGATAAGGC  GCAGCGGTCG
6351  GGCTGAACGG  GGGGTTCGTG  CACACAGCCC  AGCTTGGAGC  GAACGACCTA
6401  CACCGAACTG  AGATACCTAC  AGCGTGAGCT  ATGAGAAAGC  GCCACGCTTC
6451  CCGAAGGGAG  AAAGGCGGAC  AGGTATCCGG  TAAGCGGCAG  GGTCGGAACA
6501  GGAGAGCGCA  CGAGGGAGCT  TCCAGGGGGA  AACGCCTGGT  ATCTTTATAG
```

Fig. 22

```
6551  TCCTGTCGGG TTTCGCCACC TCTGACTTGA GCGTCGATTT TTGTGATGCT
6601  CGTCAGGGGG GCGGAGCCTA TGGAAAAACG CCAGCAACGC GGCCTTTTTA
6651  CGGTTCCTGG CCTTTTGCTG GCCTTTTGCT CACATGTTCT TTCCTGCGTT
6701  ATCCCCTGAT TCTGTGGATA ACCGTATTAC CGCCTTTGAG TGAGCTGATA
6751  CCGCTCGCCG CAGCCGAACG ACCGAGCGCA GCGAGTCAGT GAGCGAGGAA
6801  GCGGAAGAGC GCCAATACGC AAACCGCCTC TCCCCGCGCG TTGGCCGATT
6851  CATTAATGCA ACTATGGCCA TTTAATGTAA ATACTTAAGA AAAAAAACCA
6901  AATTAATTTT GATACATGCT GCATGTGAAG ACCCCCGCTG ACGGGTAGTC
6951  AATCACTCAG AGGAGACCCT CCCAAGGCAG CGAGACCACA AGTCGGAAAT
7001  GAAAGACCCC CGCTGACGGG TAGTCAATCA CTCAGAGGAG ACCCTCCCAA
7051  GGAACAGCGA GACCACAAGT CGGATGCAAC TGCAAGAGGG TTTATTGGAT
7101  ACACGGGTAC CCGGGCGACT CAGTCAATCG GAGGACTGGC GCCCCGAGTG
7151  AGGGGTTGTG GGCTCTTTTA TTGAGCTCGG GGAGCAGAAG CGCGCGAACA
7201  GAAGCGAGAA GCGAACTGAT TGGTTAGTTC AAATAAGGCA CAGGGTCATT
7251  TCAGGTCCTT GGGGCACCCT GGAAACATCT GATGGTTCTC TAGAAACTGC
7301  TGAGGGCTGG ACCGCATCTG GGACCATCT GTTCTTGGCC CTGAGCCGGG
7351  GCAGGAACTG CTTACCACAG ATATCCTGTT TGGCCCATAT TCAGCTGTTC
7401  CATCTGTTCT TGGCCCTGAG CCGGGGCAGG AACTGCTTAC CACAGATATC
7451  CTGTTTGGCC CATATTCAGC TGTTCCATCT GTTCCTGACC TTGATCTGAA
7501  CTTCTCTATT CTCAGTTATG TATTTTTCCA TGCCTTGCAA AATGGCGTTA
7551  CTTAAGCTAG CAGATCTGCT AGCTTGCCAA ACCTACAGGT GGGGTCTTTC
7601  ATTCCCCCCT TTTTCTGGAG ACTAAATAAA ATCTTTTATT TTATGCGCAC
7651  ATTTCCCCGA AAAGTGCCAC CTGACGTCTA AGAAACCATT ATTATCATGA
7701  CATTAACCTA TAAAAATAGG CGTATCACGA GGCCCTTTCG TCCGCACATT
7751  TCCCCGAAAA GTGCCACCTG ACGTCTAAGA AACCATTATT ATCATGACAT
7801  TAACCTATAA AAATAGGCGT ATCACGAGGC CCTTTCGTCC
```

Fig. 22

pRetroOFF-U19tsa58   Length: 8852

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   1    TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGTTT
  51    ACCACTCCCT ATCAGTGATA GAGAAAAGTG AAAGTCGAGT TTACCACTCC
 101    CTATCAGTGA TAGAGAAAGT GAAAGTCGAG TTTACCACTC CCTATCAGTG
 151    ATAGAGAAAA GTGAAAGTCG AGTTACCAC TCCCTATCAG TGATAGAGAA
 201    AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG AAAAGTGAAG
 251    TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGCTC
 301    GGTACCCGGG TCGAGTAGGC GTGTACGGTG GAGGCCTAT ATAAGCAGAG
 351    CTCGTTTAGT GAACCGTCAG ATCGCCTGGA GACGCCATCC ACGCTGTTTT
 401    GACCTCCATA GAAGACACCG GGACCGATCC AGCCTGCGGC CGCTTAATTA
 451    AGTTTAAACG GATCCxxxxx xxxxxxatgc catctagtga tgatgaggct
 501    actgctgact ctcaacattc tactcctcca aaaaagaaga gaaaggtaga
 551    agaccccaag gactttcctt cagaattgct aagttttttg agtcatgctg
 601    tgtttagtaa tagaactctt gcttgctttg ctatttacac cacaaaggaa
 651    aaagctgcac tgctatacaa gaaaattatg gaaaaatatt ctgtaacctt
 701    tataagtagg cataacagtt ataatcataa catactgttt tttcttactc
 751    cacacaggca tagagtgtct gctattaata actatgctca aaaattgtgt
 801    acctttagct ttttaatttg taaagggtt aataaggaat atttgatgta
 851    tagtgccttg actagagatc cattttctgt tattgaggaa agtttgccag
 901    gtgggttaaa ggagcatgat tttaatccag aagaagcaga ggaaactaaa
 951    caagtgtcct ggaagcttgt aacagagtat gcaatggaaa caaaatgtga
1001    tgatgtgttg ttattgcttg ggatgtactt ggaatttcag tacagttttg
1051    aaatgtgttt aaatgtatt aaaaaagaac agcccagcca ctataagtac
1101    catgaaaagc attatgcaaa tgctgctata tttgctgaca gcaaaaacca
1151    aaaaaccata tgccaacagg ctgttgatac tgttttagct aaaaagcggg
1201    ttgatagcct acaattaact agagaacaaa tgttaacaaa cagatttaat
1251    gatcttttgg ataggatgga tataatgttt ggttctacag gctctgctga
1301    catagaagaa tggatggctg gagttgcttg gctacactgt ttgttgcccc
1351    aaatggattc agtggtgtat gactttttaa aatgcatggt gtacaacatt
1401    cctaaaaaaa gatactggct gtttaaagga ccaattgata gtggtaaaac
1451    tacattagca gctgctttgc ttgaattatg tgggggaaa gctttaaatg
1501    ttaatttgcc cttggacagg ctgaactttg agctaggagt agctattgac
1551    cagttttag tagttttga ggatgtaaag ggcactggag gggagtccag
1601    agatttgcct tcaggtcagg gaattaataa cctggacaat ttaagggatt
1651    atttggatgg cagtgttaag gtaaacttag aaaagaaaca cctaaataaa
1701    agaactcaaa tatttccccc tggaatagtc accatgaatg agtacagtgt
1751    gcctaaaaca ctgcaggcca gatttgtaaa acaaatagat tttaggccca
1801    aagattattt aaagcattgc ctggaacgca gtgagttttt gttagaaaag
1851    agaataattc aaagtggcat tgctttgctt cttatgttaa tttggtacag
1901    acctgtggct gagtttgctc aaagtattca gagcagaatt gtggagtgga
1951    aagagagatt ggacaaagag tttagtttgt cagtgtatca aaaaatgaag
2001    tttaatgtgg ctatgggaat tggagtttta gattggctaa gaaacagtga
2051    tgatgatgat gaagacagcc aggaaaatgc tgataaaaat gaagatggtg
2101    gggagaagaa catggaagac tcaggcatg aaacaggcat tgattcacag
2151    tcccaaggct catttcaggc ccctcagtcc tcacagtctg ttcatgatca
2201    taatcagcca taccacattt gtagaggttt tacttgcttt aaaaaacctc
2251    ccacacctcc ccctgaacct gaaacataax xxxxxxxxxx ggatccCCCG
2301    GGAACAACAA CAATTGCATT CATTTTATGT TTCAGGTTCA GGGGGAGGTG
2351    TGGGAGGTTT TTTAAAGCAA GTAAACCTC TACAAATGTG GTATGGCTGA
2401    TTATGATCCT GCAAGCCTCG TCGTCTGGCC GGACCACGCT ATCTGTGCAA
2451    GGTCCCCGGA CGCGCGCTCC ATGAGCAGAG CGTCGCGCCC CCTACCCACC
2501    GTACTCGTCA ATTCCAAGGG CATCGGTAAA CAGAGCGCCG TAGGGGGCGG
2551    AGTCGTGGGG GGTAAATCCC GGACCCGGGG AATCCCCGTC CCCCAACATG
2601    TCCAGATCGA AATCGTCTAG CGCGTCGGCA TGCGCCATCG CCACGTCCTC
2651    GCCGTATAAG TGGAGCTCGT CCCCCAGGCT GACATCGGTC GGGGGGGCCG
2701    TCGACAGTCT GCGCGTGTGT CCGCGGGGAG AAAGGACAGG CGCGGAGCCG
2751    CCAGCCCCGC CTCTTCGGGG GCGTCGTCGT CCGGGAGATC GAGCAGGCCC
2801    TCGATGGTAG ACCCGTAATT GTTTTTCGTA CGCGCGCGGC TGTACGCGGA
2851    CCCACTTTCA CATTTAAGTT GTTTTTCTAA TCCGCATATG ATCAATTCAA
2901    GGCCGAATAA GAAGGCTGGC TCTGCACCTT GGTGATCAAA TAATTCGATA
2951    GCTTGTCGTA ATAATGGCGG CATACTATCA GTAGTAGGTG TTTCCCTTTC
3001    TTCTTTAGCG ACTTGATGCT CTTGATCTTC CAATACGCAA CCTAAAGTAA
3051    AATGCCCCAC AGCGCTGAGT GCATATAATG CATTCTCTAG TGAAAAACCT
3101    TGTTGGCATA AAAAGGCTAA TTGATTTTCG AGAGTTTCAT ACTGTTTTTC
3151    TGTAGGCCGT GTACCTAAAT GTACTTTTGC TCCATCGCGA TGACTTAGTA
3201    AAGCACATCT AAAACTTTTA GCGTTATTAC GTAAAAAATC TTGCCAGCTT
```

Fig. 23

```
3251   TCCCCTTCTA AAGGGCAAAA GTGAGTATGG TGCCTATCTA ACATCTCAAT
3301   GGCTAAGGCG TCGAGCAAAG CCCGCTTATT TTTTACATGC CAATACAATG
3351   TAGGCTGCTC TACACCTAGC TTCTGGGCGA GTTTACGGGT TGTTAAACCT
3401   TCGATTCCGA CCTCATTAAG CAGCTCTAAT GCGCTGTTAA TCACTTTACT
3451   TTTATCTAAT CTAGACATGG TGGAAGCTTT TTGCAAAAGC CTAGGCCTCC
3501   AAAAAAGCCT CCTCACTACT TCTGGAATAG CTCAGAGGCC GAGGCGGCCT
3551   CGGCCTCTGC ATAAATAAAA AAAATTAGTC AGCCATGGGG CGGAGAATGG
3601   GCGGAACTGG GCGGAGTTAG GGGCGGGATG GGCGGAGTTA GGGGCGGGAC
3651   TATGGTTGCT GACTAATTGA GATGCATGCT TTGCATACTT CTGCCTGCTG
3701   GGGAGCCTGG GGACTTTCCA CACCTGGTTG CTGACTAATT GAGATGCATG
3751   CTTTGCATAC TTCTGCCTGC TGGGGAGCCT GGGGACTTTC CACACCCTAA
3801   CTGACACACA TTCCACAGGT CGACTAGATC GAATTCTCAA TTGTTTTACG
3851   CGGCCCGATG CATGGGGTCG TGCGCTCCTT TCGGTCGGGC GCTGCGGGTC
3901   GTGGGGCGGG CGTCAGGCAC CGGGCTTGCG GGTCATGCAC CAGGTCGCGC
3951   GGTCCTTCGG GCACTCGACG TCGGCGGTGA CGGTGAAGCC GAGCCGCTCG
4001   TAGAAGGGGA GGTTGCGGGG CGCGGAGGTC TCCAGGAAGG CGGGCACCCC
4051   GGCGCGCTCG GCCGCCTCCA CTCCGGGGAG CACGACGGCG CTGCCCAGAC
4101   CCTTGCCCTG GTGGTCGGGC GAGACGCCGA CGGTGGCCAG GAACCACGCG
4151   GGCTCCTTGG GCCGGTGCGG CGCCAGGAGG CCTTCCATCT GTTGCTGCGC
4201   GGCCAGCCGG GAACCGCTCA ACTCGGCCAT GCGCGGGCCG ATCTCGGCGA
4251   ACACCGCCCC CGCTTCGACG CTCTCCGGCG TGGTCCAGAC CGCCACCGCG
4301   GCGCCGTCGT CCGCGACCCA CACCTTGCCG ATGTCGAGCC CGACGCGCGT
4351   GAGGAAGAGT TCTTGCAGCT CGGTGACCCG CTCGATGTGG CGGTCCGGAT
4401   CGACGGTGTG GCGCGTGGCG GGGTAGTCGG CGAACGCGGC GGCGAGGGTG
4451   CGTACGGCCC TGGGGACGTC GTCGCGGGTG GCGAGGCGCA CCGTGGGCTT
4501   GTACTCGGTC ATGGTAAGCT GATCCGGCCG GCGCCTAGAG AAGGAGTGAG
4551   GGCTGGATAA AGGGAGGATT GAGGCGGGGT CGAAAGAGGA GGTTCAAGGG
4601   GGAGAGACGG CGCGGATGGA AGAAGAGGAG GCGGAGGCTT AGGGTGTACA
4651   AAGGGCTTGA CCCAGGGAGG GGGGTCAAAA GCCAAGGCTT CCCAGGTCAC
4701   GATGTAGGGG ACCTGGTCTG GGTGTCCATG CGGGCCAGGT GAAAAGACCT
4751   TGATCTTAAC CTGGGTGATG AGGTCTCGGT TAAAGGTGCC GTCTCGCGGC
4801   CATCCGACGT TAAAGGTTGG CCATTCTGCA GAGCAGAAGG TAACCCAACG
4851   TCTCTTCTTG ACATCTACCG ACTGGTTGTG AGCGAGCCGC TCGACATCTT
4901   TCCAGTGATC TAAGGTCAAA CTTAAGGGAG TGGTAACAGT CTGGCCCTAA
4951   TTTTCAGACA AATACAGAAA CACAGTCAGA CAGAGACAAC ACAGAACGAT
5001   GCTGCAGCAG ACAAGACGCG CGGCTTCGGT TCCAAACCGA AAGCAAAAAT
5051   TCAGACGGAG GCGGGAACTG TTTTAGGTTC TCGTCTCCTA CCAGAACCAC
5101   ATATCCTGAC GGGGTCGGAT TCCACATCGA CTCCCTTCCT CAGGTCGGGC
5151   CACAAAAACG GCCCCCAAAG TCCCTGGGAC GTCTCCCAGG GTTGCGGCCG
5201   GGTGTTCAGA ACTCGTCAGT TCCACCACGG GTCCGCCAGA TACAGAGCTA
5251   GTTAGCTAAC TAGTACCGAC GCAGGCGCAT AAAATCAGTC ATAGACACTA
5301   GACAATCGGA CAGACACAGA TAAGTTGCTG GCCAGCTTAC CTCCCGGTGG
5351   TGGGTCGGTG GTCCCTGGGC AGGGGTCTCC CGATCCCGGA CGAGCCCCCA
5401   AATGAAAGAC CCCCGCTGAC GGGTAGTCAA TCACTCAGAG GAGACCCTCC
5451   CAAGGAACAG CGAGACCACA AGTCGGATGC AACTGCAAGA GGGTTTATTG
5501   GATACACGGG TACCCGGGCG ACTCAGTCAA TCGGAGGACT GGCGCCCCGA
5551   GTGAGGGGTT GTGGGCTCTT TTATTGAGCT CGGGGAGCAG AAGCGCGCGA
5601   ACAGAAGCGA GAAGCGAACT GATTGGTTAG TTCAAATAAG GCACAGGGTC
5651   ATTTCAGGTC CTTGGGGCAC CCTGGAAACA TCTGATGGTT CTCTAGAAAC
5701   TGCTGAGGGC TGGACCGCAT CTGGGGACCA TCTGTTCTTG GCCCTGAGCC
5751   GGGGCAGGAA CTGCTTACCA CAGATATCCT GTTTGGCCCA TATTCAGCTG
5801   TTCCATCTGT TCTTGGCCCT GAGCCGGGGC AGGAACTGCT TACCACAGAT
5851   ATCCTGTTTG GCCCATATTC AGGCTGCAGG TGGCACTTTT CGGGGAAATG
5901   TGCGCGGAAC CCCTATTTGT TTATTTTTCT AAATACATTC AAATATGTAT
5951   CCGCTCATGA GACAATAACC CTGATAAATG CTTCAATAAT ATTGAAAAAG
6001   GAAGAGTATG AGTATTCAAC ATTTCCGTGT CGCCCTTATT CCCTTTTTTG
6051   CGGCATTTTG CCTTCCTGTT TTTGCTCACC CAGAAACGCT GGTGAAAGTA
6101   AAAGATGCTG AAGATCAGTT GGGTGCACGA GTGGGTTACA TCGAACTGGA
6151   TCTCAACAGC GGTAAGATCC TTGAGAGTTT TCGCCCCGAA GAACGTTTTC
6201   CAATGATGAG CACTTTTAAA GTTCTGCTAT GTGGCGCGGT ATTATCCCGT
6251   GTTGACGCCG GGCAAGAGCA ACTCGGTCGC CGCATACACT ATTCTCAGAA
6301   TGACTTGGTT GAGTACTCAC CAGTCACAGA AAAGCATCTT ACGGATGGCA
6351   TGACAGTAAG AGAATTATGC AGTGCTGCCA TAACCATGAG TGATAACACT
6401   GCGGCCAACT TACTTCTGAC AACGATCGGA GGACCGAAGG AGCTAACCGC
6451   TTTTTTGCAC AACATGGGGG ATCATGTAAC TCGCCTTGAT CGTTGGGAAC
6501   CGGAGCTGAA TGAAGCCATA CCAAACGACG AGCGTGACAC CACGATGCCT
6551   GTAGCAATGG CAACAACGTT GCGCAAACTA TTAACTGGCG AACTACTTAC
```

Fig. 23

```
6601  TCTAGCTTCC  CGGCAACAAT  TAATAGACTG  GATGGAGGCG  GATAAAGTTG
6651  CAGGACCACT  TCTGCGCTCG  GCCCTTCCGG  CTGGCTGGTT  TATTGCTGAT
6701  AAATCTGGAG  CCGGTGAGCG  TGGGTCTCGC  GGTATCATTG  CAGCACTGGG
6751  GCCAGATGGT  AAGCCCTCCC  GTATCGTAGT  TATCTACACG  ACGGGGAGTC
6801  AGGCAACTAT  GGATGAACGA  AATAGACAGA  TCGCTGAGAT  AGGTGCCTCA
6851  CTGATTAAGC  ATTGGTAACT  GTCAGACCAA  GTTTACTCAT  ATATACTTTA
6901  GATTGATTTG  CGGCCGGCCG  CAAACTTCAT  TTTTAATTTA  AAAGGATCTA
6951  GGTGAAGATC  CTTTTTGATA  ATCTCATGAC  CAAAATCCCT  TAACGTGAGT
7001  TTTCGTTCCA  CTGAGCGTCA  GACCCCGTAG  AAAAGATCAA  AGGATCTTCT
7051  TGAGATCCTT  TTTTTCTGCG  CGTAATCTGC  TGCTTGCAAA  CAAAAAAACC
7101  ACCGCTACCA  GCGGTGGTTT  GTTTGCCGGA  TCAAGAGCTA  CCAACTCTTT
7151  TTCCGAAGGT  AACTGGCTTC  AGCAGAGCGC  AGATACCAAA  TACTGTCCTT
7201  CTAGTGTAGC  CGTAGTTAGG  CCACCACTTC  AAGAACTCTG  TAGCACCGCC
7251  TACATACCTC  GCTCTGCTAA  TCCTGTTACC  AGTGGCTGCT  GCCAGTGGCG
7301  ATAAGTCGTG  TCTTACCGGG  TTGGACTCAA  GACGATAGTT  ACCGGATAAG
7351  GCGCAGCGGT  CGGGCTGAAC  GGGGGGTTCG  TGCACACAGC  CCAGCTTGGA
7401  GCGAACGACC  TACACCGAAC  TGAGATACCT  ACAGCGTGAG  CTATGAGAAA
7451  GCGCCACGCT  TCCCGAAGGG  AGAAAGGCGG  ACAGGTATCC  GGTAAGCGGC
7501  AGGGTCGGAA  CAGGAGAGCG  CACGAGGGAG  CTTCCAGGGG  GAAACGCCTG
7551  GTATCTTTAT  AGTCCTGTCG  GGTTTCGCCA  CCTCTGACTT  GAGCGTCGAT
7601  TTTTGTGATG  CTCGTCAGGG  GGGCGGAGCC  TATGGAAAAA  CGCCAGCAAC
7651  GCGGCCTTTT  TACGGTTCCT  GGCCTTTTGC  TGGCCTTTTG  CTCACATGTT
7701  CTTTCCTGCG  TTATCCCCTG  ATTCTGTGGA  TAACCGTATT  ACCGCCTTTG
7751  AGTGAGCTGA  TACCGCTCGC  CGCAGCCGAA  CGACCGAGCG  CAGCGAGTCA
7801  GTGAGCGAGG  AAGCGGAAGA  GCGCCAATAC  GCAAACCGCC  TCTCCCCGCG
7851  CGTTGGCCGA  TTCATTAATG  CAACTATGGC  CATTTAATGT  AAATACTTAA
7901  GAAAAAAAAC  CAAATTAATT  TTGATACATG  CTGCATGTGA  AGACCCCGC
7951  TGACGGGTAG  TCAATCACTC  AGAGGAGACC  CTCCCAAGGC  AGCGAGACCA
8001  CAAGTCGGAA  ATGAAAGACC  CCCGCTGACG  GGTAGTCAAT  CACTCAGAGG
8051  AGACCCTCCC  AAGGAACAGC  GAGACCACAA  GTCGGATGCA  ACTGCAAGAG
8101  GGTTATTGG   ATACACGGGT  ACCCGGGCGA  CTCAGTCAAT  CGGAGGACTG
8151  GCGCCCCGAG  TGAGGGGTTG  TGGGCTCTTT  TATTGAGCTC  GGGGAGCAGA
8201  AGCGCGCGAA  CAGAAGCGAG  AAGCGAACTG  ATTGGTTAGT  TCAAATAAGG
8251  CACAGGGTCA  TTTCAGGTCC  TTGGGGCACC  CTGGAAACAT  CTGATGGTTC
8301  TCTAGAAACT  GCTGAGGGCT  GGACCGCATC  TGGGGACCAT  CTGTTCTTGG
8351  CCCTGAGCCG  GGGCAGGAAC  TGCTTACCAC  AGATATCCTG  TTTGGCCCAT
8401  ATTCAGCTGT  TCCATCTGTT  CTTGGCCCTG  AGCCGGGGCA  GGAACTGCTT
8451  ACCACAGATA  TCCTGTTTGG  CCCATATTCA  GCTGTTCCAT  CTGTTCCTGA
8501  CCTTGATCTG  AACTTCTCTA  TTCTCAGTTA  TGTATTTTTC  CATGCCTTGC
8551  AAAATGGCGT  TACTTAAGCT  AGCAGATCTG  CTAGCTTGCC  AAACCTACAG
8601  GTGGGGTCTT  TCATTCCCCC  CTTTTTCTGG  AGACTAAATA  AAATCTTTTA
8651  TTTTATCGC   ACATTTCCCC  GAAAAGTGCC  ACCTGACGTC  TAAGAAACCA
8701  TTATTATCAT  GACATTAACC  TATAAAAATA  GGCGTATCAC  GAGGCCCTTT
8751  CGTCCGCACA  TTTCCCCGAA  AAGTGCCACC  TGACGTCTAA  GAAACCATTA
8801  TTATCATGAC  ATTAACCTAT  AAAAATAGGC  GTATCACGAG  GCCCTTTCGT
8851  CC
```

Fig. 23

puhd10-3-hIL3 Length: 3621

```
   1  ctcgagttta  ccactcccta  tcagtgatag  agaaaagtga  aagtcgagtt
  51  taccactccc  tatcagtgat  agagaaaagt  gaaagtcgag  tttaccactc
 101  cctatcagtg  atagagaaaa  gtgaaagtcg  agtttaccac  tccctatcag
 151  tgatagagaa  aagtgaaagt  cgagtttacc  actccctatc  agtgatagag
 201  aaaagtgaaa  gtcgagtta  ccactcccta  tcagtgatag  agaaaagtga
 251  aagtcgagtt  taccactccc  tatcagtgat  agagaaaagt  gaaagtcgag
 301  ctcggtaccc  gggtcgagta  ggcgtgtacg  gtgggaggcc  tatataagca
 351  gagctcgttt  agtgaaccgt  cagatcgcct  ggagacgcca  tccacgctgt
 401  tttgacctcc  atagaagaca  ccgggaccga  tccagcctcc  gcggccccga
 451  attaaacagt  cgagctacgt  caacgaaaaa  taaaatccaa  acatgagccg
 501  cctgcccgtc  ctgctcctgc  tccaactcct  ggtccgcccc  ggactccaag
 551  ctcccatgac  ccagacaacg  tccttgaaga  caagctgggt  taactgctct
 601  aacatgatcg  atgaaattat  aacacactta  aagcagccac  ctttgccttt
 651  gctggacttc  aacaacctca  tggggaaga  ccaagacatt  ctgatggaaa
 701  ataaccttcg  aaggccaaac  ctggaggcat  tcaacaggc  tgtcaagagt
 751  ttacagaacg  catcagcaat  tgagagcatt  cttaaaaatc  tcctgccatg
 801  tctgcccctg  gccacggccg  cacccacgcg  acatccaatc  catatcaagg
 851  acggtgactg  gaatgaattc  cggaggaaac  tgacgttcta  tctgaaaacc
 901  cttgagaatg  cgcaggctca  acagacgact  ttgagcctcg  cgatctttta
 951  gaactcgact  ctagacatga  taagatacat  tgatgagttt  ggacaaacca
1001  caactagaat  gcagtgaaaa  aaatgcttta  tttgtgaaat  ttgtgatgct
1051  attgctttat  ttgtaaccat  tataagctgc  aataaacaag  ttaacaacaa
1101  caattgcatt  cattttatgt  ttcaggttca  gggggaggtg  tgggaggttt
1151  tttaaagcaa  gtaaaacctc  tacaaatgtg  gtatggctga  ttatgatcct
1201  gcaagcctcg  tcgtctggcc  ggaccacgct  atctgtgcaa  ggtccccgga
1251  cgcgcgctcc  atgagcagag  cgcccgccgc  cgaggcaaga  ctcgggcggc
1301  gccctgcccg  tcccaccagg  tcaacaggcg  gtaaccggcc  tcttcatcgg
1351  gaatgcgcgc  gaccttcagc  atcgccggca  tgtcccctgg  cggacgggaa
1401  gtatcagctc  gaccaagctt  ggcgagattt  tcaggagcta  aggaagctaa
1451  aatggagaaa  aaaatcactg  gatataccac  cgttgatata  tcccaatggc
1501  atcgtaaaga  acattttgag  gcatttcagt  cagttgctca  atgtacctat
1551  aaccagaccg  ttcagctgca  ttaatgaatc  ggccaacgcg  cggggagagg
1601  cggtttgcgt  attgggcgct  cttccgcttc  ctcgctcact  gactcgctgc
1651  gctcggtcgt  tcggctgcgg  cgagcggtat  cagctcactc  aaagtcggta
1701  atacggttat  ccacagaatc  aggggataac  gcaggaaaga  acatgtgagc
1751  aaaaggccag  caaaaggcca  ggaaccgtaa  aaaggccgcg  ttgctggcgt
1801  ttttccatag  gctccgcccc  cctgacgagc  atcacaaaaa  tcgacgctca
1851  agtcagaggt  ggcgaaaccc  gacaggacta  taaagatacc  aggcgtttcc
1901  ccctggaagc  tccctcgtgc  gctctcctgt  tccgaccctg  ccgcttaccg
1951  gatacctgtc  cgcctttctc  ccttcgggaa  gcgtggcgct  ttctcaatgc
2001  tcacgctgta  ggtatctcag  ttcggtgtag  gtcgttcgct  ccaagctggg
2051  ctgtgtgcac  gaaccccccg  ttcagcccga  ccgctgcgcc  ttatccggta
2101  actatcgtct  tgagtccaac  ccggtaagac  acgacttatc  gccactggaa
2151  gcagccactg  gtaacaggat  tagcagagcg  aggtatgtag  gcggtgctac
2201  agagttcttg  aagtggtggc  ctaactacgg  ctacactaga  aggacagtat
2251  ttggtatctg  cgctctgctg  aagccagtta  ccttcggaaa  aagagttggt
2301  agctcttgat  ccggcaaaca  aaccaccgct  ggtagcggtg  gtttttttgt
2351  ttgcaagcag  cagattacgc  gcagaaaaaa  aggatctcaa  gaagatcctt
2401  tgatcttttc  tacggggtct  gacgctcagt  ggaacgaaaa  ctcacgttaa
2451  gggattttgg  tcatgagatt  atcaaaaagg  atcttcacct  agatcctttt
2501  aaattaaaaa  tgaagtttta  aatcaatcta  aagtatatat  gagtaaactt
2551  ggtctgacag  ttaccaatgc  ttaatcagtg  aggcacctat  ctcagcgatc
2601  tgtctatttc  gttcatccat  agttgcctga  ctccccgtcg  tgtagataac
2651  tacgatacgg  gagggcttac  catctggccc  cagtgctgca  atgataccgc
2701  gagacccacg  ctcaccggct  ccagatttat  cagcaataaa  ccagccagcc
2751  ggaagggccg  agcgcagaag  tggtcctgca  actttatccg  cctccatcca
2801  gtctattaat  tgttgccggg  aagctagagt  aagtagttcg  ccagttaata
2851  gtttgcgcaa  cgttgttgcc  attgctacag  gcatcgtgtg  tcacgctcg
2901  tcgtttggta  tggcttcatt  cagctccggt  tcccaacgat  caaggcgagt
2951  tacatgatcc  cccatgttgt  gcaaaaaagc  ggttagctcc  ttcggtcctc
3001  cgatcgttgt  cagaagtaag  ttggccgcag  tgttatcact  catggttatg
3051  gcagcactgc  ataattctct  tactgtcatg  ccatccgtaa  gatgcttttc
3101  tgtgactggt  gagtactcaa  ccaagtcatt  ctgagaatag  tgtatgcggc
3151  gaccgagttg  ctcttgcccg  tcgtcaatac  gggataatac  cgcgccacat
3201  agcagaactt  taaaagtgct  catcattgga  aacgttctt  cggggcgaaa
```

Fig. 24

```
3251   actctcaagg  atcttaccgc  tgttgagatc  cagttcgatg  taacccactc
3301   gtgcacccaa  ctgatcttca  gcatctttta  ctttcaccag  cgtttctggg
3351   tgagcaaaaa  caggaaggca  aaatgccgca  aaaaagggaa  taagggcgac
3401   acggaaatgt  tgaatactca  tactcttcct  ttttcaatat  tattgaagca
3451   tttatcaggg  ttattgtctc  atgagcggat  acatatttga  atgtatttag
3501   aaaaataaac  aaatagggggt  tccgcgcaca  tttccccgaa  aagtgccacc
3551   tgacgtctaa  gaaaccatta  ttatcatgac  attaacctat  aaaaataggc
3601   gtatcacgag  gccctttcgt  c
```

Fig. 24

pUHD10-3-hIL6
Length: 3752 June 22, 1999 10:32 Type: N Check: 8139 ..

```
      1   ctcgagttta ccactcccta tcagtgatag agaaaagtga aagtcgagtt
     51   taccactccc tatcagtgat agagaaaagt gaaagtcgag tttaccactc
    101   cctatcagtg atagagaaaa gtgaaagtcg agtttaccac tccctatcag
    151   tgatagagaa aagtgaaagt cgagtttacc actccctatc agtgatagag
    201   aaaagtgaaa gtcgagttta ccactcccta tcagtgatag agaaaagtga
    251   aagtcgagtt taccactccc tatcagtgat agagaaaagt gaaagtcgag
    301   ctcggtaccc gggtcgagta ggcgtgtacg gtgggaggcc tatataagca
    351   gagctcgttt agtgaaccgt cagatcgcct ggagacgcca tccacgctgt
    401   tttgacctcc atagaagaca ccgggaccga tccagcctcc gcggtggcgg
    451   ccgctctaga actagtggat cccccagctt acctgccatg ccagtacccc
    501   caggagaaga ttccaaagat gtagccgccc cacacagaca gccactcacc
    551   tcttcagaac gaattgacaa acaaattcgg tacatcctcg acggcatctc
    601   agccctgaga aaggagacat gtaacaagag taacatgtgt gaaagcagca
    651   aagaggcact ggcagaaaac aacctgaacc ttccaaagat ggctgaaaaa
    701   gatggatgct ccaatctgg attcaatgag gagacttgcc tggtgaaaat
    751   catcactggt ctttttggagt ttgaggtata cctagagtac ctccagaaca
    801   gatttgagag tagtgaggaa caagccagag ctgtccagat gagtacaaaa
    851   gtcctgatcc agttcctgca gaaaaaggca aagaatctag atgcaataac
    901   cacccctgac ccaaccacaa atgccagcct gctgacgaag ctgcaggcac
    951   agaaccagtg gctgcaggac atgacaactc atctcattct gcgcagcttt
   1001   aaggagttcc tgcagtccag cctgagggct cttcggcaaa tgtagtaagg
   1051   atccgaattc gagctcggta cccggggatc tctagagga tccagacatg
   1101   ataagataca ttgatgagtt tggacaaacc acaactagaa tgcagtgaaa
   1151   aaaatgcttt atttgtgaaa tttgtgatgc tattgcttta tttgtaacca
   1201   ttataagctg caataaacaa gttaacaaca caattgcat tcattttatg
   1251   tttcaggttc aggggaggt gtgggaggtt ttttaaagca gtaaaacct
   1301   ctacaaatgt ggtatggctg attatgatcc tgcaagcctc gtcgtctggc
   1351   cggaccacgc tatctgtgca aggtccccgg acgcgcgctc catgagcaga
   1401   gcgcccgccg ccgaggcaag actcgggcgg cgccctgccc gtcccaccag
   1451   gtcaacaggc ggtaaccggc ctcttcatcg ggaatgcgcg cgaccttcag
   1501   catcgccggc atgtcccctg gcggacggga agtatcagct cgaccaagct
   1551   tggcgagatt ttcaggagct aaggaagcta aaatggagaa aaaatcact
   1601   ggatatacca ccgttgatat atcccaatgg catcgtaaag aacattttga
   1651   ggcatttcag tcagttgctc aatgtaccta taaccagacc gttcagctgc
   1701   attaatgaat cggccaacgc gcggggagag cggtttgcg tattgggcgc
   1751   tcttccgctt cctcgctcac tgactcgctg cgctcggtcg ttcggctgcg
   1801   gcgagcggta tcagctcact caaagtcggg aatacggtta tccacagaat
   1851   caggggataa cgcaggaaag aacatgtgag caaaaggcca gcaaaaggcc
   1901   aggaaccgta aaaaggccgc gttgctggcg tttttccata ggctccgccc
   1951   ccctgacgag catcacaaaa atcgacgctc aagtcagagg tggcgaaacc
   2001   cgacaggact ataaagatac caggcgtttc ccctggaag ctccctcgtg
   2051   cgctctcctg ttccgaccct gccgcttacc ggatacctgt ccgcctttct
   2101   cccttcggga agcgtggcgc tttctcaatg ctcacgctgt aggtatctca
   2151   gttcggtgta ggtcgttcgc tccaagctgg ctgtgtgca cgaacccccc
   2201   gttcagcccg accgctgcgc cttatccggt aactatcgtc ttgagtccaa
   2251   cccggtaaga cacgacttat cgccactgga agcagccact ggtaacagga
   2301   ttagcagagc gaggtatgta ggcggtgcta cagagttctt gaagtggtgg
   2351   cctaactacg gctacactag aaggacagta tttggtatct gcgctctgct
   2401   gaagccagtt accttcggaa aaagagttgg tagctcttga tccggcaaac
   2451   aaaccaccgc tggtagcggt ggtttttttg tttgcaagca gcagattacg
   2501   cgcagaaaaa aaggatctca agaagatcct ttgatctttt ctacggggtc
   2551   tgacgctcag tggaacgaaa actcacgtta agggatttg gtcatgagat
   2601   tatcaaaaag gatcttcacc tagatccttt aaattaaaa atgaagtttt
   2651   aaatcaatct aaagtatata tgagtaaact ggtctgaca gttaccaatg
   2701   cttaatcagt gaggcaccta tctcagcgat ctgtctattt cgttcatcca
   2751   tagttgcctg actccccgtc gtgtagataa ctacgatacg ggagggctta
   2801   ccatctggcc ccagtgctgc aatgataccg cgagacccac gctcaccggc
   2851   tccagattta tcagcaataa accagccagc cggaagggcc gagcgcagaa
   2901   gtggtcctgc aactttatcc gcctccatcc agtctattaa ttgttgccgg
   2951   gaagctagag taagtagttc gccagttaat agtttgcgca acgttgttgc
   3001   cattgctaca ggcatcgtgt ggtcacgctc gtcgtttggt atggcttcat
   3051   tcagctccgg ttcccaacga tcaaggcgag ttacatgatc ccccatgttg
   3101   tgcaaaaaag cggttagctc cttcggtcct ccgatcgttg tcagaagtaa
   3151   gttggccgca gtgttatcac tcatggttat ggcagcactg cataattctc
```

Fig. 25

```
3201  ttactgtcat  gccatccgta  agatgctttt  ctgtgactgg  tgagtactca
3251  accaagtcat  tctgagaata  gtgtatgcgg  cgaccgagtt  gctcttgccc
3301  gtcgtcaata  cgggataata  ccgcgccaca  tagcagaact  ttaaaagtgc
3351  tcatcattgg  aaaacgttct  tcggggcgaa  aactctcaag  gatcttaccg
3401  ctgttgagat  ccagttcgat  gtaacccact  cgtgcaccca  actgatcttc
3451  agcatctttt  actttcacca  gcgtttctgg  gtgagcaaaa  acaggaaggc
3501  aaaatgccgc  aaaaaaggga  ataagggcga  cacggaaatg  ttgaatactc
3551  atactcttcc  tttttcaata  ttattgaagc  atttatcagg  gttattgtct
3601  catgagcgga  tacatatttg  aatgtattta  gaaaaataaa  caaataggggg
3651  ttccgcgcac  atttccccga  aaagtgccac  ctgacgtcta  agaaaccatt
3701  attatcatga  cattaaccta  taaaaatagg  cgtatcacga  ggccctttcg
3751  tc
```

Fig. 25

puhd10-3-tgf

```
    ctcgagtttaccactccctatcagtgatagagaaaagtgaaagtcgagtttaccactccc
  1 ---------+---------+---------+---------+---------+---------+ 60

    tatcagtgatagagaaaagtgaaagtcgagtttaccactccctatcagtgatagagaaaa
 61 ---------+---------+---------+---------+---------+---------+ 120

    gtgaaagtcgagtttaccactccctatcagtgatagagaaaagtgaaagtcgagtttacc
121 ---------+---------+---------+---------+---------+---------+ 180

    actccctatcagtgatagagaaaagtgaaagtcgagtttaccactccctatcagtgatag
181 ---------+---------+---------+---------+---------+---------+ 240

    agaaaagtgaaagtcgagtttaccactccctatcagtgatagagaaaagtgaaagtcgag
241 ---------+---------+---------+---------+---------+---------+ 300

    ctcggtacccgggtcgagtaggcgtgtacggtgggaggcctatataagcagagctcgttt
301 ---------+---------+---------+---------+---------+---------+ 360

    agtgaaccgtcagatcgcctggagacgccatccacgctgttttgacctccatagaagaca
361 ---------+---------+---------+---------+---------+---------+ 420

    ccgggaccgatccagcctccgcggccccgaattcctgcagcccATGCACTTGCAAAGGGC
421 ---------+---------+---------+---------+---------+---------+ 480

    TCTGGTAGTCCTGGCCCTGCTGAACTTGGCCACAATCAGCCTCTCTCTGTCCACTTGCAC
481 ---------+---------+---------+---------+---------+---------+ 540

    CACGTTGGACTTCGGCCACATCAAGAAGAAGAGGGTGGAAGCCATTAGGGGACAGATCTT
541 ---------+---------+---------+---------+---------+---------+ 600

    GAGCAAGCTCAGGCTCACCAGCCCCCCTGAGCCATCGGTGATGACCCACGTCCCCTATCA
601 ---------+---------+---------+---------+---------+---------+ 660

    GGTCCTGGCACTTTACAACAGCACCCGGGAGTTGCTGGAAGAGATGCACGGGGAGAGGGA
661 ---------+---------+---------+---------+---------+---------+ 720

    GGAAGGCTGCACTCAGGAGACCTCGGAGTCTGAGTACTATGCCAAAGAGATCCATAAATT
721 ---------+---------+---------+---------+---------+---------+ 780

    CGACATGATCCAGGGACTGGCGGAGCACAATGAACTGGCCGTCTGCCCCAAAGGAATTAC
781 ---------+---------+---------+---------+---------+---------+ 840

    CTCTAAGGTTTTTCGTTTCAATGTGTCCTCAGTGGAGAAAAATGGAACCAATCTGTTCCG
841 ---------+---------+---------+---------+---------+---------+ 900

    GGCAGAGTTCCGGGTCTTGCGGGTGCCCAACCCCAGCTCCAAGCGCACAGAGCAGAGAAT
901 ---------+---------+---------+---------+---------+---------+ 960

    TGAGCTCTTCCAGATACTTCGACCGGATGAGCACATAGCCAAGCAGCGCTACATAGGTGG
961 ---------+---------+---------+---------+---------+---------+ 1020

    CAAGAATCTGCCCACAAGGGGCACCGCTGAATGGCTGTCTTTCGATGTCACTGACACTGT
1021 ---------+---------+---------+---------+---------+---------+ 1080

    GCGCGAGTGGCTGTTGAGGAGAGAGTCCAACTTGGGTCTGGAAATCAGCATCCACTGTCC
1081 ---------+---------+---------+---------+---------+---------+ 1140

    ATGTCACACCTTTCAGCCCAATGGAGACATACTGGAAAATGTTCATGAGGTGATGGAAAT
1141 ---------+---------+---------+---------+---------+---------+ 1200

    CAAATTCAAAGGAGTGGACAATGAAGATGACCATGGCCGTGGAGACCTGGGGCGTCTCAA
1201 ---------+---------+---------+---------+---------+---------+ 1260

    GAAGCAAAAGGATCACCACAACCCACACCTGATCCTCATGATGATCCCCCCACACCGACT
1261 ---------+---------+---------+---------+---------+---------+ 1320
```

Fig. 26

```
      GGACAGCCCAGGCCAGGGCAGTCAGAGGAAGAAGAGGGCCCTGGACACCAATTACTGCTT
1321  --------+---------+---------+---------+--------+---------+  1380

      CCGCAACCTGGAGGAGAACTGCTGTGTACGCCCCCTTTATATTGACTTCCGGCAGGATCT
1381  --------+---------+---------+---------+---------+---------+  1440

      AGGCTGGAAATGGGTCCACGAACCTAAGGGTTACTATGCCAACTTCTGCTCAGGCCCTTG
1441  --------+---------+---------+---------+---------+---------+  1500

      CCCATACCTCCGCAGCGCAGACACAACCCATAGCACGGTGCTTGGACTATACAACACCCT
1501  --------+---------+---------+---------+---------+---------+  1560

      GAACCCAGAGGCGTCTGCCTCGCCATGCTGCGTCCCCCAGGACCTGGAGCCCCTGACCAT
1561  --------+---------+---------+---------+---------+---------+  1620

      CTTGTACTATGTGGGCAGAACCCCCAAGGTGGAGCAGCTGTCCAACATGGTGGTGAAGTC
1621  --------+---------+---------+---------+---------+---------+  1680

      GTGTAAGTGCAGCTGAgggggatccactagttctagaggatccagacatgataagataca
1681  --------+---------+---------+---------+---------+---------+  1740

      ttgatgagtttggacaaaccacaactagaatgcagtgaaaaaaatgctttatttgtgaaa
1741  --------+---------+---------+---------+---------+---------+  1800

      tttgtgatgctattgctttatttgtaaccattataagctgcaataaacaagttaacaaca
1801  --------+---------+---------+---------+---------+---------+  1860

      acaattgcattcattttatgtttcaggttcaggggggaggtgtgggaggttttttaaagca
1861  --------+---------+---------+---------+---------+---------+  1920

      agtaaaacctctacaaatgtggtatggctgattatgatcctgcaagcctcgtcgtctggc
1921  --------+---------+---------+---------+---------+---------+  1980

      cggaccacgctatctgtgcaaggtccccggacgcgcgctccatgagcagagcgcccgccg
1981  --------+---------+---------+---------+---------+---------+  2040

      ccgaggcaagactcgggcggcgccctgcccgtcccaccaggtcaacaggcggtaaccggc
2041  --------+---------+---------+---------+---------+---------+  2100

      ctcttcatcgggaatgcgcgcgaccttcagcatcgccggcatgtccctggcggacggga
2101  --------+---------+---------+---------+---------+---------+  2160

      agtatcagctcgaccaagcttggcgagattttcaggagctaaggaagctaaaatggagaa
2161  --------+---------+---------+---------+---------+---------+  2220

      aaaaatcactggatataccaccgttgatatatcccaatggcatcgtaaagaacattttga
2221  --------+---------+---------+---------+---------+---------+  2280

      ggcatttcagtcagttgctcaatgtacctataaccagaccgttcagctgcattaatgaat
2281  --------+---------+---------+---------+---------+---------+  2340

      cggccaacgcgcggggagaggcggtttgcgtattgggcgctcttccgcttcctcgctcac
2341  --------+---------+---------+---------+---------+---------+  2400

      tgactcgctgcgctcggtcgttcggctgcggcgagcggtatcagctcactcaaagtcggt
2401  --------+---------+---------+---------+---------+---------+  2460

      aatacggttatccacagaatcaggggataacgcaggaaagaacatgtgagcaaaaggcca
2461  --------+---------+---------+---------+---------+---------+  2520

      gcaaaaggccaggaaccgtaaaaaggccgcgttgctggcgtttttccataggctccgccc
2521  --------+---------+---------+---------+---------+---------+  2580

      ccctgacgagcatcacaaaaatcgacgctcaagtcagaggtggcgaaacccgacaggact
2581  --------+---------+---------+---------+---------+---------+  2640
```

Fig. 26.

```
          ataaagataccaggcgtttcccccctggaagctccctcgtgcgctctcctgttccgaccct
     2641 ---------+---------+---------+---------+---------+---------+ 2700

          gccgcttaccggatacctgtccgcctttctcccttcgggaagcgtggcgctttctcaatg
     2701 ---------+---------+---------+---------+---------+---------+ 2760

          ctcacgctgtaggtatctcagttcggtgtaggtcgttcgctccaagctgggctgtgtgca
     2761 ---------+---------+---------+---------+---------+---------+ 2820

          cgaaccccccgttcagcccgaccgctgcgccttatccggtaactatcgtcttgagtccaa
     2821 ---------+---------+---------+---------+---------+---------+ 2880

          cccggtaagacacgacttatcgccactggaagcagccactggtaacaggattagcagagc
     2881 ---------+---------+---------+---------+---------+---------+ 2940

          gaggtatgtaggcggtgctacagagttcttgaagtggtggcctaactacggctacactag
     2941 ---------+---------+---------+---------+---------+---------+ 3000

          aaggacagtatttggtatctgcgctctgctgaagccagttaccttcggaaaaagagttgg
     3001 ---------+---------+---------+---------+---------+---------+ 3060

          tagctcttgatccggcaaacaaaccaccgctggtagcggtggtttttttgtttgcaagca
     3061 ---------+---------+---------+---------+---------+---------+ 3120

          gcagattacgcgcagaaaaaaaggatctcaagaagatcctttgatcttttctacggggtc
     3121 ---------+---------+---------+---------+---------+---------+ 3180

          tgacgctcagtggaacgaaaactcacgttaagggattttggtcatgagattatcaaaaag
     3181 ---------+---------+---------+---------+---------+---------+ 3240

          gatcttcacctagatccttttaaattaaaaatgaagttttaaatcaatctaaagtatata
     3241 ---------+---------+---------+---------+---------+---------+ 3300

          tgagtaaacttggtctgacagttaccaatgcttaatcagtgaggcacctatctcagcgat
     3301 ---------+---------+---------+---------+---------+---------+ 3360

          ctgtctatttcgttcatccatagttgcctgactccccgtcgtgtagataactacgatacg
     3361 ---------+---------+---------+---------+---------+---------+ 3420

          ggagggcttaccatctggccccagtgctgcaatgataccgcgagacccacgctcaccggc
     3421 ---------+---------+---------+---------+---------+---------+ 3480

          tccagatttatcagcaataaaccagccagccggaagggccgagcgcagaagtggtcctgc
     3481 ---------+---------+---------+---------+---------+---------+ 3540

          aactttatccgcctccatccagtctattaattgttgccgggaagctagagtaagtagttc
     3541 ---------+---------+---------+---------+---------+---------+ 3600

          gccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtgtggtcacgctc
     3601 ---------+---------+---------+---------+---------+---------+ 3660

          gtcgtttggtatggcttcattcagctccggttcccaacgatcaaggcgagttacatgatc
     3661 ---------+---------+---------+---------+---------+---------+ 3720

          ccccatgttgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcagaagtaa
     3721 ---------+---------+---------+---------+---------+---------+ 3780

          gttggccgcagtgttatcactcatggttatggcagcactgcataattctcttactgtcat
     3781 ---------+---------+---------+---------+---------+---------+ 3840

          gccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctgagaata
     3841 ---------+---------+---------+---------+---------+---------+ 3900

          gtgtatgcggcgaccgagttgctcttgcccgtcgtcaatacgggataataccgcgccaca
     3901 ---------+---------+---------+---------+---------+---------+ 3960

          tagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactctcaag
```

Fig. 26

```
3961 ---------+---------+---------+---------+---------+---------+ 4020

     gatcttaccgctgttgagatccagttcgatgtaacccactcgtgcacccaactgatcttc
4021 ---------+---------+---------+---------+---------+---------+ 4080

     agcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaatgccgc
4081 ---------+---------+---------+---------+---------+---------+ 4140

     aaaaaagggaataagggcgacacggaaatgttgaatactcatactcttccttttttcaata
4141 ---------+---------+---------+---------+---------+---------+ 4200

     ttattgaagcatttatcagggttattgtctcatgagcggatacatatttgaatgtatttta
4201 ---------+---------+---------+---------+---------+---------+ 4260

     gaaaaataaacaaataggggttccgcgcacatttccccgaaaagtgccacctgacgtcta
4261 ---------+---------+---------+---------+---------+---------+ 4320

     agaaaccattattatcatgacattaacctataaaaataggcgtatcacgaggccctttcg
4321 ---------+---------+---------+---------+---------+---------+ 4380

     tc
4381 -- 4382
```

Fig. 26

pUHD10.3-hflt3 Ligand-exon 6 plasmid Length: 4224

```
   1 CTCGAGTTTA CCACTCCCTA TCAGTGATAG AGAAAAGTGA AAGTCGAGTT
  51 TACCACTCCC TATCAGTGAT AGAGAAAAGT GAAAGTCGAG TTTACCACTC
 101 CCTATCAGTG ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG
 151 TGATAGAGAA AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG
 201 AAAAGTGAAA GTCGAGTTTA CCACTCCCTA TCAGTGATAG AGAAAAGTGA
 251 AAGTCGAGTT TACCACTCCC TATCAGTGAT AGAGAAAAGT GAAAGTCGAG
 301 CTCGGTACCC GGGTCGAGTA GGCGTGTACG GTGGGAGGCC TATATAAGCA
 351 GAGCTCGTTT AGTGAACCGT CAGATCGCCT GGAGACGCCA TCCACGCTGT
 401 TTTGACCTCC ATAGAAGACA CCGGGACCGA TCCAGCCTCC GCGGCCCCGA
 451 ATTCCggggc ccccggccga aATGacagtg ctggcgccag cctggagccc
 501 aacaacctat ctcctcctgc tgctgctgct gagctcggga ctcagtggga
 551 cccaggactg ctccttccaa cacagcccca tctcctccga cttcgctgtc
 601 aaaatccgtg agctgtctga ctacctgctt caagattacc cagtcaccgt
 651 ggcctccaac ctgcaggacg aggagctctg cggggggcctc tggcggctgg
 701 tcctggcaca gcgctggatg gagcggctca agactgtcgc tgggtccaag
 751 atgcaaggct tgctggagcg cgtgaacacg gagatacact tgtcaccaa
 801 atgtgccttt cagcccccccc ccagctgtct tcgcttcgtc cagaccaaca
 851 tctcccgcct cctgcaggag acctccgagc agctggtggc gctgaagccc
 901 tggatcactc gccagaactt ctcccggtgc ctggagctgc agtgtcagcc
 951 cgtagagacg gtgtttcacc gtgtcagcca ggatggtctc gatctcctga
1001 cctcgTGAtc tgcccgcctc ggcctcccaa agtgctagga ttacagatac
1051 tcctcaaccc tgccaccccc atggagtccc cggcccctgg aggccacagc
1101 cccgacagcc ccgcagcccc ctctgctcct cctactgctg ctgcccgtgg
1151 gcctcctgct gctggccgct gcctggtgcc tgcactggca gaggacgcgg
1201 cggaggacac cccgccctgg ggagcaggtg cccccgtcc ccagtcccca
1251 ggacctgctg cttgtggagc actgacctgg ccaaggcctc atcctgcgga
1301 gccttaaaca acgcagtgag acagacatct atcatcccat tttacagggg
1351 aggatactga ggcacacaga ggggagtcac cagccagagg atgtatagcc
1401 tggacacaga ggaagttggc tagaggccgg tcccttcctt gggcccctct
1451 cattccctcc ccagaatgga ggcaacgcca gaatccagca ccggccccat
1501 ttacccaact ctgaacaaag cccCCGGAAT TCGAGCTCGG TACCCGGGGA
```

Fig. 26a

1551 TCCTCTAGAG GATCCAGACA TGATAAGATA CATTGATGAG TTTGGACAAA

1601 CCACAACTAG AATGCAGTGA AAAAAATGCT TTATTTGTGA AATTTGTGAT

1651 GCTATTGCTT TATTTGTAAC CATTATAAGC TGCAATAAAC AAGTTAACAA

1701 CAACAATTGC ATTCATTTTA TGTTTCAGGT TCAGGGGGAG GTGTGGGAGG

1751 TTTTTTAAAG CAAGTAAAAC CTCTACAAAT GTGGTATGGC TGATTATGAT

1801 CCTGCAAGCC TCGTCGTCTG GCCGGACCAC GCTATCTGTG CAAGGTCCCC

1851 GGACGCGCGC TCCATGAGCA GAGCGCCCGC CGCCGAGGCA AGACTCGGGC

1901 GGCGCCCTGC CCGTCCCACC AGGTCAACAG GCGGTAACCG CCTCTTCAT

1951 CGGGAATGCG CGCGACCTTC AGCATCGCCG GCATGTCCCC TGGCGGACGG

2001 GAAGTATCAG CTCGACCAAG CTTGGCGAGA TTTTCAGGAG CTAAGGAAGC

2051 TAAAATGGAG AAAAAAATCA CTGGATATAC CACCGTTGAT ATATCCCAAT

2101 GGCATCGTAA AGAACATTTT GAGGCATTTC AGTCAGTTGC TCAATGTACC

2151 TATAACCAGA CCGTTCAGCT GCATTAATGA ATCGGCCAAC GCGCGGGGAG

2201 AGGCGGTTTG CGTATTGGGC GCTCTTCCGC TTCCTCGCTC ACTGACTCGC

2251 TGCGCTCGGT CGTTCGGCTG CGGCGAGCGG TATCAGCTCA CTCAAAGGCG

2301 GTAATACGGT TATCCACAGA ATCAGGGGAT AACGCAGGAA AGAACATGTG

2351 AGCAAAAGGC CAGCAAAAGG CCAGGAACCG TAAAAAGGCC GCGTTGCTGG

2401 CGTTTTTCCA TAGGCTCCGC CCCCCTGACG AGCATCACAA AAATCGACGC

2451 TCAAGTCAGA GGTGGCGAAA CCCGACAGGA CTATAAAGAT ACCAGGCGTT

2501 TCCCCCTGGA AGCTCCCTCG TGCGCTCTCC TGTTCCGACC CTGCCGCTTA

2551 CCGGATACCT GTCCGCCTTT CTCCCTTCGG GAAGCGTGGC GCTTTCTCAA

2601 TGCTCACGCT GTAGGTATCT CAGTTCGGTG TAGGTCGTTC GCTCCAAGCT

2651 GGGCTGTGTG CACGAACCCC CCGTTCAGCC CGACCGCTGC GCCTTATCCG

2701 GTAACTATCG TCTTGAGTCC AACCCGGTAA GACACGACTT ATCGCCACTG

2751 GCAGCAGCCA CTGGTAACAG GATTAGCAGA GCGAGGTATG TAGGCGGTGC

2801 TACAGAGTTC TTGAAGTGGT GGCCTAACTA CGGCTACACT AGAAGGACAG

2851 TATTTGGTAT CTGCGCTCTG CTGAAGCCAG TTACCTTCGG AAAAAGAGTT

2901 GGTAGCTCTT GATCCGGCAA ACAAACCACC GCTGGTAGCG GTGGTTTTTT

2951 TGTTTGCAAG CAGCAGATTA CGCGCAGAAA AAAAGGATCT CAAGAAGATC

3001 CTTTGATCTT TTCTACGGGG TCTGACGCTC AGTGGAACGA AAACTCACGT

3051 TAAGGGATTT TGGTCATGAG ATTATCAAAA AGGATCTTCA CCTAGATCCT

3101 TTTAAATTAA AAATGAAGTT TTAAATCAAT CTAAAGTATA TATGAGTAAA

3151 CTTGGTCTGA CAGTTACCAA TGCTTAATCA GTGAGGCACC TATCTCAGCG

Fig. 26a

```
3201 ATCTGTCTAT TTCGTTCATC CATAGTTGCC TGACTCCCCG TCGTGTAGAT
3251 AACTACGATA CGGGAGGGCT TACCATCTGG CCCCAGTGCT GCAATGATAC
3301 CGCGAGACCC ACGCTCACCG GCTCCAGATT TATCAGCAAT AAACCAGCCA
3351 GCCGGAAGGG CCGAGCGCAG AAGTGGTCCT GCAACTTTAT CCGCCTCCAT
3401 CCAGTCTATT AATTGTTGCC GGGAAGCTAG AGTAAGTAGT TCGCCAGTTA
3451 ATAGTTTGCG CAACGTTGTT GCCATTGCTA CAGGCATCGT GGTGTCACGC
3501 TCGTCGTTTG GTATGGCTTC ATTCAGCTCC GGTTCCCAAC GATCAAGGCG
3551 AGTTACATGA TCCCCCATGT TGTGCAAAAA AGCGGTTAGC TCCTTCGGTC
3601 CTCCGATCGT TGTCAGAAGT AAGTTGGCCG CAGTGTTATC ACTCATGGTT
3651 ATGGCAGCAC TGCATAATTC TCTTACTGTC ATGCCATCCG TAAGATGCTT
3701 TTCTGTGACT GGTGAGTACT CAACCAAGTC ATTCTGAGAA TAGTGTATGC
3751 GGCGACCGAG TTGCTCTTGC CCGGCGTCAA TACGGGATAA TACCGCGCCA
3801 CATAGCAGAA CTTTAAAAGT GCTCATCATT GGAAAACGTT CTTCGGGGCG
3851 AAAACTCTCA AGGATCTTAC CGCTGTTGAG ATCCAGTTCG ATGTAACCCA
3901 CTCGTGCACC CAACTGATCT TCAGCATCTT TTACTTTCAC CAGCGTTTCT
3951 GGGTGAGCAA AAACAGGAAG GCAAAATGCC GCAAAAAAGG GAATAAGGGC
4001 GACACGGAAA TGTTGAATAC TCATACTCTT CCTTTTTCAA TATTATTGAA
4051 GCATTTATCA GGGTTATTGT CTCATGAGCG GATACATATT TGAATGTATT
4101 TAGAAAAATA AACAAATAGG GGTTCCGCGC ACATTTCCCC GAAAAGTGCC
4151 ACCTGACGTC TAAGAAACCA TTATTATCAT GACATTAACC TATAAAAATA
4201 GGCGTATCAC GAGGCCCTTT CGTC
```

Fig. 26a

Recovery of insert: EcoRI

B=BamHI
E=EcoRI
H=Hind3
K=Kpn I
M=Sma I
S=Sst I
X=Xba I
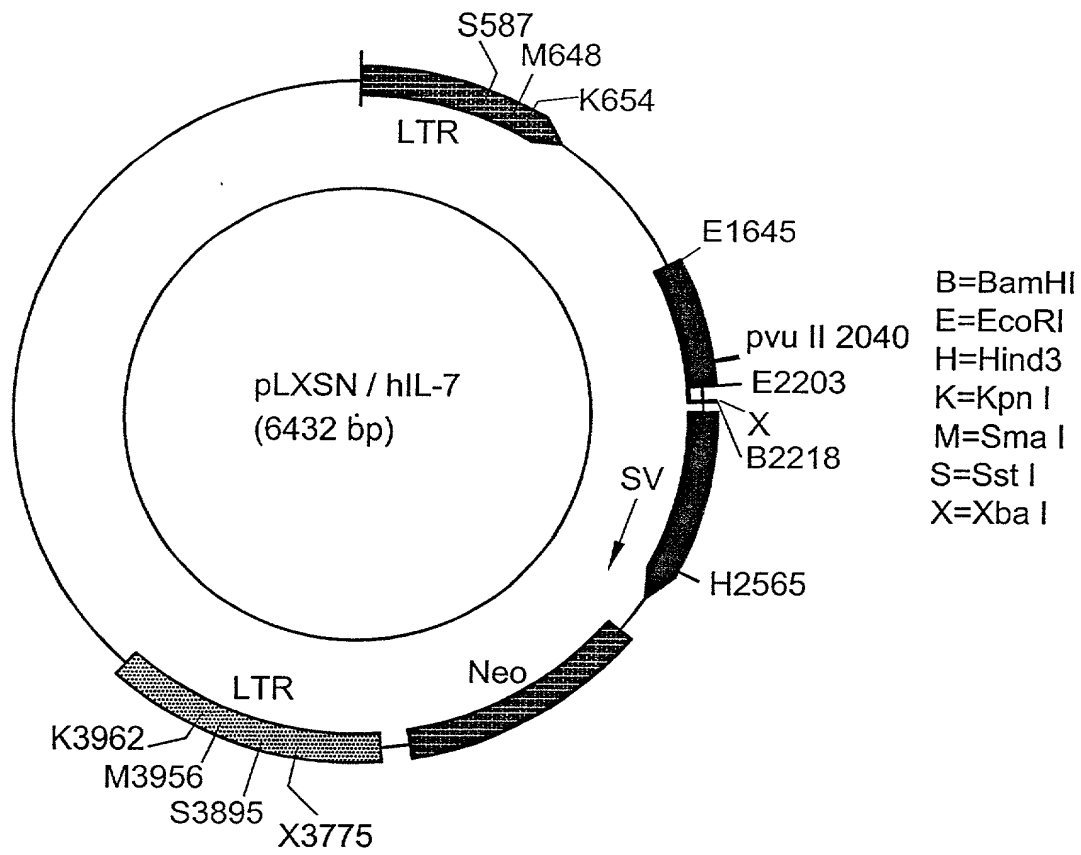
Ref. (HSIL7A)
Insert:375(-10)   770   933(+5)
E   pvu II   E

FIG.27

Plasmid-chart

Designation:	pLXSN/hIL-2	Log no.:	
Insert:	hIl-2 (473bp)	Location:	
Vector:	pLXSN (5874bp)	Selection: Amp	
Recovery of insert:	Eco RI /Bam HI	Ref.: pLXSN BioTechniques 7,980-987(1989)	
	Hpal / Bam HI	hIL-2 Nature 302,305-309(1983)	
	Xho I / Bam HI		

LTR

Eco RI 1644bp
Hpa I 1653 bp
Xho I 1658 bp
Bem HI 1660 bp

Bgl II

IL-2

BamHI

SV40

pLXSN / hIL-2
6347 bp

neo

LTR
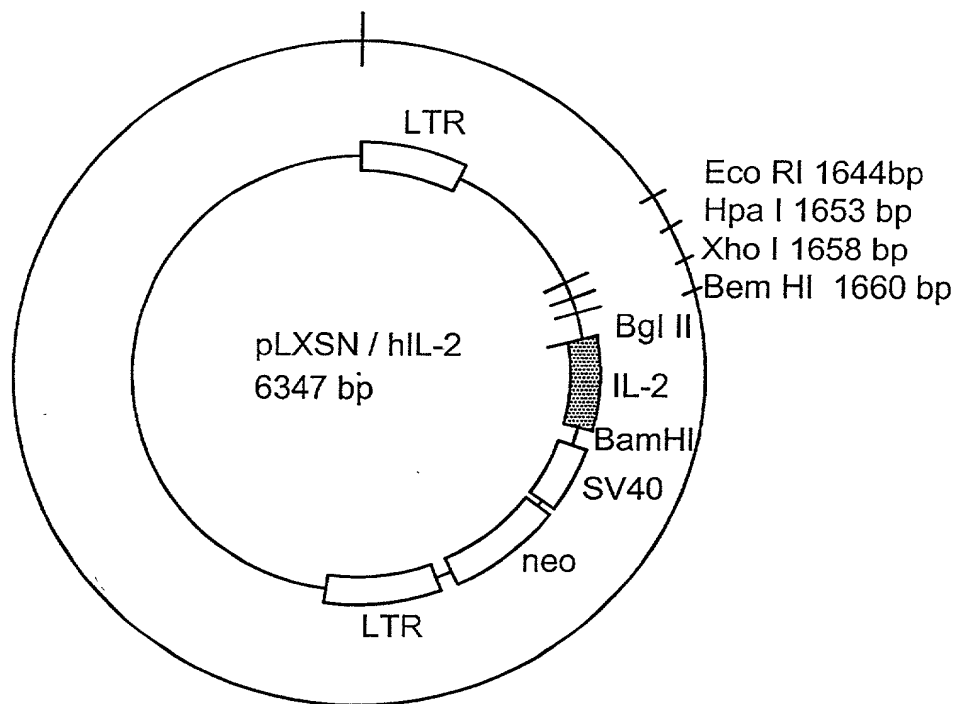
Insert: Bgl II
5' AGA TCT ACA - IL-2 - TAA TTA AGT BamHI 473 bp

FIG.28